An Archaeological Reconnaissance Survey

of

Craig County, Virginia

by

Thomas S. Klatka

October, 1990

Archives/Research Library
Virginia Department of
Historic Resources
Richmond, Virginia 23219

Submitted through:

The Roanoke Regional Preservation Office

of the

Virginia Department of Historic Resources

ABSTRACT

This report presents the results of a reconnaissance level survey of Craig County, Virginia, conducted by the Roanoke Regional Preservation Office of the Virginia Department of Historic Resources. The purpose of this survey was to inventory and assess the archaeological resources of Craig County, and to initiate a long term field program which will provide reliable predictive information to assist the development of preservation strategies for the archaeological resources of western Virginia. The field survey concentrated on the Route 311 development corridor in the southern and central portions of the county, the previously unsurveyed Sinking Creek Valley in the southwestern portion of the county, and the Craig Creek Valley in the northeastern portion of the county. Field survey was conducted from August through October of 1989, and intermittently from February through June of 1990. The survey resulted in the discovery and documentation of 87 prehistoric and historic archaeological sites and eight historic standing structures. This study includes an assessment of the correlation of archaeological site locations in the county with selected environmental variables, an assessment of archaeological site density based upon systematic sample survey data, an assessment of the Craig County archaeological site files, and concludes with recommendations for future research.

Table of Contents

Abstract.....i

List of Figures.....iv

List of Tables.....v

Chapter I: Introduction 1.1

Chapter II: The Environment of the Craig County Region . 2.1
- Location, Extent and Physiography 2.1
- Modern Climate 2.6
- Paleoenvironment 2.8
- Flora and Fauna 2.12
- Lithic and Mineral Resources..... 2.16
- Hydrology 2.24
- Soils 2.26

Chapter III: An Overview of Regional Prehistory and History 3.1
- A Regional Prehistory of the Craig County Region ... 3.1
- An Economic and Social History of Craig County 3.29

Chapter IV: Survey Design and Field Methodology 4.1
- Introduction 4.1
- Rationale for the Survey Design 4.2
- Field Techniques 4.5
- Non-Random Survey Methodology and Informant Interviewing 4.8
- Random Survey Methodology 4.10

Chapter V: Analysis of the Survey Data 5.1
- Introduction 5.1
- Elevation 5.15
- Hydrology 5.16
- Soils and Topography 5.20
- Random Transect Survey Results 5.26
- Conclusions and Recommendations for Future Research 5.31

References Cited R.1

Appendix 1: Locational information from sites recorded prior to the Craig County reconnaissance survey.....A.1

Appendix 2: Locational information from sites recorded during the Craig County reconnaissance survey.....A.8

List of Figures

Figure 2.1. Index Map Illustrating the Location of Craig County.....2.2

Figure 2.2. Base map of Craig County.....2.3

Figure 2.3. General Soil Map of Craig County.....2.28

Figure 4.1. Location of Transect 1.....4.13

Figure 4.2 Location of Transect 2.....4.14

Figure 4.3. Location of Transect 3.....4.15

Figure 4.4. Location of Transect 4.....4.16

Figure 4.5. Location of Transect 5.....4.17

Figure 4.6. Location of Transect 6.....4.18

List of Tables

Table 3.1. Types and Frequencies of Services and Occupations in the Craig County Area in 1835 (Martin 1835) 3.35

Table 5.1. Dates and functions of archaeological sites recorded prior to the Craig County reconnaissance survey.....5.7

Table 5.2. Dates and functions of archaeological sites recorded during the Craig County reconnaissance survey.....5.10

Table 5.3. Statistical Summary of Archaeological Sites From Craig County by Temporal Component 5.13

Table 5.4. Percentages of Known Archaeological Sites by Temporal Component on the Monongahela-Purdy-Chavies-Pope and the Frederick-Lodi-Clarksville-Hayter soil associations 5.22

Table 5.5. Completed Survey Transects 5.28

CHAPTER ONE

INTRODUCTION

This report presents the results of an archaeological reconnaissance survey of Craig County, Virginia, conducted by the Roanoke Regional Preservation Office of the Virginia Department of Historic Resources. It represents part of the Department of Historic Resources's survey program designed to inventory the cultural resources of the Commonwealth by archaeologically sampling separate units of space as a means of developing predictive models which can assist the development of preservation strategies for cultural resources. These preservation strategies can then be made available to local planning agencies, developers, and cultural resource managers concerned with immediate and long-range preservation issues in their area (Wittkofski 1988: 6). The survey design was structured according to the guidelines for reconnaissance level surveys established by the U.S. Department of the Interior (1983). When properly structured, a reconnaissance survey allows the collection of new information and the assessment of existing information to define the range of site types and document their patterns of distribution in an area. Therefore, it is considered to be the most practical means of conducting a state-wide archaeological survey program (Turner

1988: 101-102, 106).

The goals of the Craig County reconnaissance survey were specific in some regards and general in others. At the most general level, the survey attempted to gather systematic archaeological data which would contribute to the long term goal of systematically investigating the number and variety of prehistoric and historic sites within the primary service area of the Department of Historic Resources's Roanoke Regional Preservation Office, and to assess the size, patterning, and integrity of these sites in the regional archaeological record. These goals are nested within the broader research objectives of providing reliable predictive data which will facilitate the refinement of regional cultural resource management and preservation plans, and generating an information base which will allow a greater understanding of regional prehistory and history. Since Craig County had not undergone an intensive survey of its archaeological resources, a more specific objective of the survey was to add to the existing inventory of archaeological sites within Craig County in order to bring the county to the reconnaissance level of survey, and thereby contribute towards the development of the Department of Historic Resources's regional preservation plan for southwestern Virginia.

The majority of the Craig County reconnaissance survey was undertaken through a pedestrian survey of areas with good

surface visibility, and entailed the detailed documentation of observed archaeological sites and standing structures. All archaeological sites were systematically inspected with controlled surface collection techniques, and were further documented with scaled drawings and photographs. The exteriors of standing structures were documented with scaled drawings and photographs, and architectural details were recorded. When accessible, the interiors were also documented with scaled drawings and photographs. Areas immediately surrounding the structures were also examined for surficial evidence. Any additional structural or artifactual evidence was mapped and noted. As a means of reaching the long term goal of generating reliable predictive information regarding the prehistoric and historic cultural resources of the southwestern Virginia region, a portion of the Craig County reconnaissance survey was designed around probability sampling and systematic subsurface testing.

All of the artifacts recovered during the reconnaissance survey, as well as the field notes, and photographs of sites and private artifact collections, are curated at the Roanoke Regional Preservation Office in Roanoke, Virginia. Site inventory forms for the recorded sites in Craig County are filed at the Virginia Department of the Historic Resources, in Richmond, and at the Roanoke Regional Preservation Office.

Fieldwork for the Craig County reconnaissance survey was

conducted from August through October of 1989, and intermittently from February through June of 1990. During the summer months of 1989 and 1990, Ferri M. Lockhart provided invaluable and knowledgeable assistance with the field survey, the laboratory processing and inventorying of artifacts, and the drawing of site maps. Michael Pulice assisted with the field survey and laboratory processing of artifacts during the summer of 1990. E. Randolph Turner, of the Virginia Department of Historic Resources, provided helpful editorial comments to increase the clarity of this report. John Kern and Daniel Pezzoni, of the Roanoke Regional Preservation Office, also assisted with the preparation of this report by providing comments on draft sections of this report, their interpretations of local and regional history, and much help with the identification and interpretation of architectural details of the surveyed standing structures.

CHAPTER TWO

THE ENVIRONMENT OF THE CRAIG COUNTY REGION

Location, Extent and Physiography

Craig County encompasses a total area of 336 square miles, or just over 870 square kilometers. The county is bounded to the northwest by Peters Mountain and a portion of Potts Mountain, the summits of which demarcate the boundary between Virginia and West Virginia. To the southeast, it is bounded by Brush Mountain and North Mountain. The summits of these mountains also act to demarcate the political boundary between Craig and Roanoke counties. The remaining boundaries of the county are arbitrarily drawn lines separating Craig from Giles and Montgomery counties to the southwest, and Allegheny and Botetourt counties to the northeast (Figures 2.1 and 2.2). New Castle, the county seat, is centrally located within the county. Other population centers in the county amount to little more than small villages. The closest cities are Salem and Roanoke, located approximately 20 miles to the south, in Roanoke County.

Craig County lies within the Ridge and Valley physiographic province of the Appalachian Highlands. This province includes a relatively narrow belt of valleys and

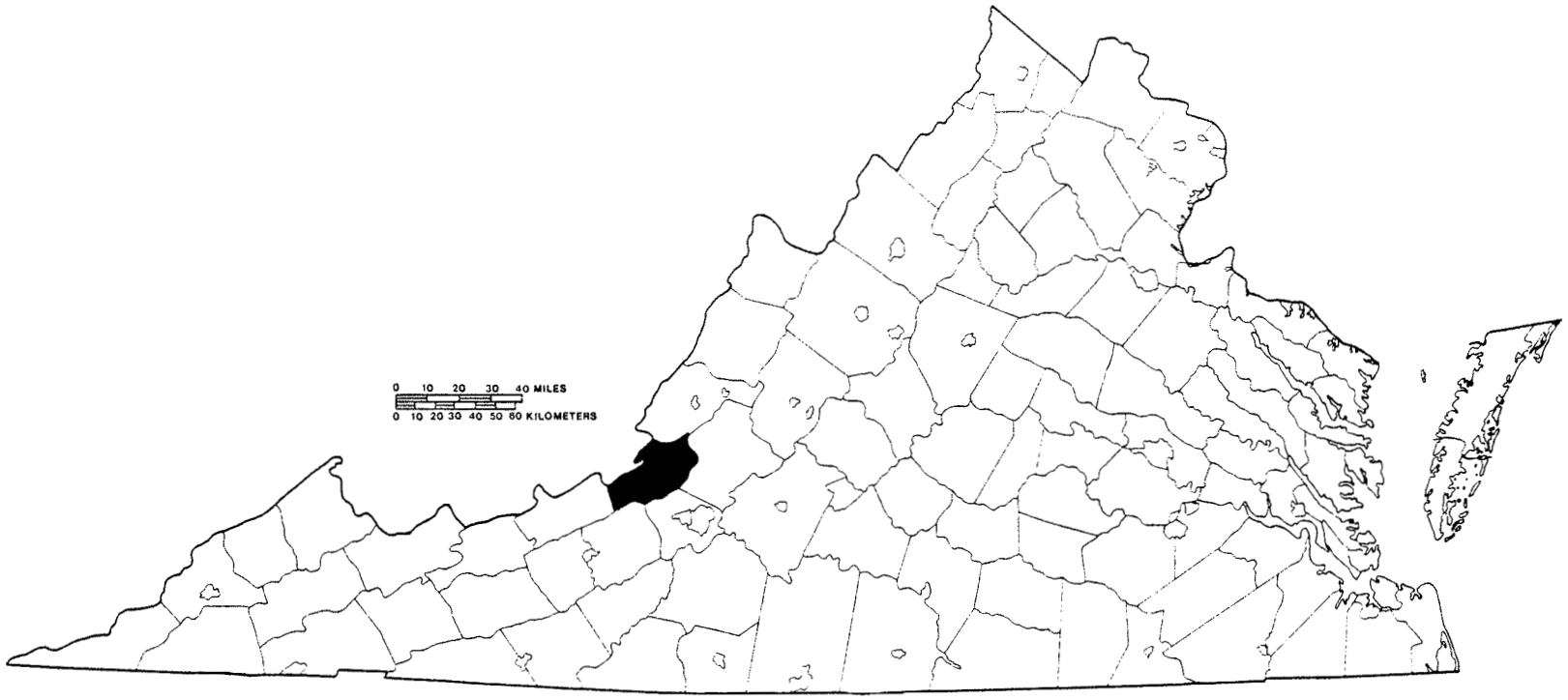

Figure 2.1. Index map illustrating the location of Craig County.

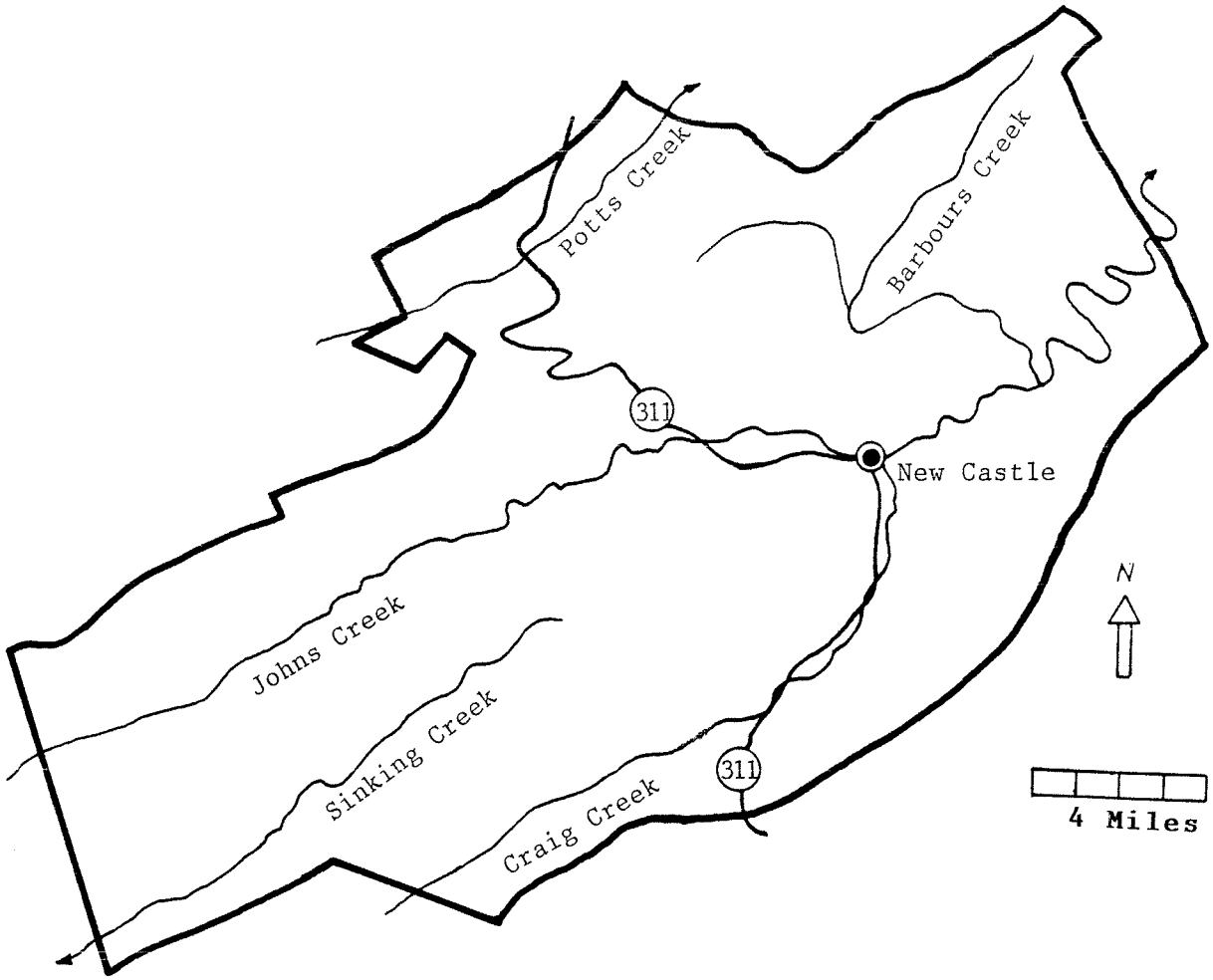

Figure 2.2. Base Map of Craig County.

ridges lying between the northwestern ridges of the Blue Ridge province, and the eastern escarpment of the Appalachian Plateau province.

Topographically, the area consists of a series of parallel valleys and ridges which trend along a northeastern-southwestern axis. The relatively wide stream valleys are made discontinuous by the dominating array of narrow, linear ridge systems (Fenneman 1938: 196). These landforms reflect a deep seated regional deformation in which local geologic strata are folded into a complex series of interrelated anticlines and synclines (Butts 1973: 15).

In general, the ridge systems coincide with highly inclined outcrops of rock which are resistant to the forces of erosion. The differential erosion of softer rock strata has further modified the terrain, leaving the more resistant strata as topographic high points (Butts 1973:10-14). Some of the prominent and persistent ridge systems within Craig County include Bald, Sinking Creek, Johns Creek, and Potts mountains. Numerous benches, or level areas, are observable along the slopes of the ridges. These benches have been formed through the erosion of relatively soft rock strata which overlie more resistant strata. The continued erosion of softer rock strata has dissected areas of broad valleys with steeply ascending slopes. These valleys are drained by long creeks which generally flow parallel to the ridges. The broad, alluvial

valleys tend to hold the larger watercourses such as Craig, Johns, Potts, and Sinking creeks. The more narrow, colluvial valleys hold the smaller tributary drainages such as Big Branch, Tub Run, and Mill Creek.

A noteworthy geologic feature within the county is the karst topography of the Sinking Creek Valley near the headwaters of Sinking Creek and Meadow Creek. These headwaters are located within the Johns Creek-Sinking Creek synclinal valley, and are separated within the valley by a segment of the Eastern Divide. The enclosing ridges are composed of resistant sandstone and quartzite, while the valley is underlain by less resistant limestone and shale. The action of flowing water and solutions have eroded this area into a rolling karst landscape with sinkholes and interspersed underground drainages.

A number of mineral springs are also located within the county. These represent the late nineteenth and early twentieth century resorts which thrived on the premise that mineral water contained curing powers. Although once thriving, the former resorts are now in a ruinous state or have disappeared from the landscape.

The maximum relief, or difference between the highest and lowest points, in Craig County is approximately 2,820 feet. Valley base levels and ridge system peaks in the county show a general trend of decreasing elevation from northwest to

southeast. The highest apparent point in the county is located at White Rocks, in the northwest portion of the county at the junction of Giles and Craig counties, and Monroe County of West Virginia. In this area, the summit of Potts Mountain reaches a peak elevation of 3,940 feet above mean sea level. The lowest point within the county is 1,120 feet above mean sea level, located where Craig Creek flows out of Craig County and into Botetourt County.

Modern Climate

Craig County, as well as the Ridge and Valley Province as a whole, has a temperate, humid, continental climate. Such climates are located in frontal zones where maximum interaction between polar and tropical air masses can be expected. Although general weather patterns are highly variable and seasonal contrasts in temperature are abrupt, precipitation throughout the year is ample (Strahler 1975: 248-249,272). Additionally, microclimatic variation, which is partially dependent upon changes in topography and elevation, may lead to significant differences in annual temperature, precipitation, and growing seasons between contiguous valleys.

Annual temperatures within the county average 55 degrees F (Baldwin 1975, cited in Raitz and Ulack 1984: 52). Temperatures average 35 F in January and 73 F during July, but

throughout the year temperatures may vary as much as ten degrees from the valley floors to the ridge peaks. Localized variations in temperature may be attributed to the effects of relief and direction of slope on air movement and ground surface exposure to sunlight. Low temperatures appear to be pronounced along the ridge systems, especially in areas with a northern or northeastern aspect. Wind velocity is greater and hours of daily sunlight are less in these areas than on the more rolling areas of the stream valleys. Also, with a topography consisting of parallel valleys with differing base level elevations, and separated by high ridge systems, varying climatic conditions can exist from one valley to the next.

Annual precipitation within the county averages about 37 inches (Hayden 1979: 52). However, marked variation can exist within areas of relatively close proximity since the windward, or west facing slopes, experience the greatest precipitation levels, while the leeward-facing, or eastern, slopes are in the rain shadow and therefore receive less precipitation.

The highest levels of precipitation occur from late spring through summer. Although moisture is fairly abundant and evenly distributed during the summer, soil moisture levels may become quite low in the well-drained alluvial valleys and in shallow, upland soils. This is likely the result of prevailingly high summer temperatures which promote rapid moisture loss through the processes of transpiration and

evaporation. Although summer rains commonly occur as short, heavy downpours, surface runoff is minimized by the dry soils (Hayden 1979: 33, Figure 16). Intense downpours associated with tropical storms are most prevalent during late summer and early fall (Hayden 1979: 38, Figure 22). During these periods, surface run-off is rapid and drainages of small rank size are commonly flooded. Occasionally, the volume of the larger rank size streams will exceed flood stage.

Paleoenvironment

Although paleoenvironmental research has never been conducted in the Craig County area, a number of models for vegetational and climatic change during the late Pleistocene and Holocene have been established for the Middle Atlantic and Southeastern regions (e.g., Carbone 1976; Delcourt and Delcourt 1981; Watts 1980; Sirkin 1977). These models tend to rely on paleoenvironmental data collected from far-ranging geographical areas which are averaged into reconstructions pertaining to very broad spatial areas and temporal intervals. Therefore, they are of a generalized nature and should be used a framework for developing more fine-scale and local reconstructions (Carbone et al. 1982:32).

Carbone's (1976) synthesis of the available paleoecological and stratigraphic data provides one of the

primary models of paleoenvironmental change in the Middle Atlantic region. In Carbone's study, the paleoenvironmental record is characterized as a sequence of rapid, step-like transitions in climatic regimes, from one period of relative stability to another. This way of viewing the past climate and environment is an application of a global analytical framework developed by Bryson (1970, cited in Carbone 1976; see also Wendlund and Bryson 1974). This conceptual framework stresses that cycles in climatic change during the Quaternary have induced vegetational and geomorphic responses. Others, who propose a gradualist model, have argued that the episodic model downplays the dynamic nature of temperate forest migration patterns (Wright 1976). The competing models focus on different data sets, and also differ by whether temporal change is studied on the long or short duration. However, the results of recent paleoenvironmental studies allow a reconciliation of the two models and suggest "that both are equally applicable, but on different time scales" (Carbone 1982: 41). Since Carbone's (1976) reconstruction pertains to an area geographically close to the Craig County area, it will provide the basis of the following overview. Also, Bernabo's (1981) recent work will be used to characterize the period from the sub-Atlantic to recent times.

By approximately 10,000 B.C., the regional environments had been affected by the earlier retreat of the continental

glaciers. The persistence of cool temperatures and increased precipitation led to the expansion of coniferous species which, along with grasslands, came to dominate the vertically zoned flora (Carbone 1976: 185; Delcourt and Delcourt 1985: 18-19). This occurred as alluvial processes replaced colluvial processes as the dominant erosional regime, and permitted the colonization and expansion of flora in new landscapes, such as upland slopes (Delcourt and Delcourt 1986:32). Subsequent warming and drying of the climate promoted the establishment of a mixed coniferous and deciduous forest by approximately 6550 B.C. (Carbone 1976: 121, 187; Delcourt and Delcourt 1985: 19). During the development of this mixed coniferous and deciduous forest, a modern faunal assemblage was established (Guilday 1967, 1971: 257; see also Guilday et al. 1977). Large herd animals, adapted to cold climates, were replaced by less gregarious and more widely distributed species. A diverse assemblage of small mammals also became established in the new forests (Delcourt and Delcourt 1986: 33).

Regional climatic conditions were subsequently changed by a period of decreased precipitation lasting until about 4550 B.C., and a later warmer and drier period lasting until around 3050 B.C., after which there was relative stability. Vegetation changes during this time likely consisted of the continued spread of deciduous elements and fluctuation in the

extent of grasslands (Carbone 1976: 122, 189). Also, the northward migration of American chestnut resulted in the establishment of an oak-chestnut forest which came to dominate the central Appalachian Mountains (Delcourt and Delcourt 1985:21). The extreme warm and dry regime appears to have climaxed and reversed by about 2350 B.C. This was followed by a return of milder and wetter conditions which also promoted the establishment of modern floral communities within the region (Carbone 1976: 123, 192). This trend culminated by about 750 B.C. after which relative climatic stability was to continue with "only short-term perturbations . . . evident in the climatic record" (Carbone 1976: 123). The short term climatic fluctuations that occurred over the last 2,000 years have been generalized as follows.

> Mild conditions persisted to ca. A.D. 400, but a cold interval occurred between ca. A.D. 500 and 800. The well marked warm period evident from ca. A.D. 1000 to 1200 was the last time which temperatures were about equal to the 1930-1960 mean. A prolonged cooling occurred after A.D. 1200 and reached 1 degree C below the 1930-1960 mean by the 1700's . . . (Bernabo 1981:143, cited in Carbone 1982: 46).

These fluctuating temperature regimes would have probably affected the type, frequency, and ranges of the deciduous and coniferous forest elements. Although animal populations probably remained relatively stable, their ranges would have covaried with the changing forest composition.

Flora and Fauna

The Ridge and Valley Province of western Virginia is no longer occupied by any stands of virgin forest. Although it is possible that the original forest may have reestablished itself in isolated pockets after earlier periods of human exploitation, the best known examples of the original forest are remnants found in the Shenandoah National Park (Braun 1950: 222).

Analyses of sediment cores containing fossil pollen indicate that the oak-chestnut forests of the Ridge and Valley Province were established during the Holocene and "remained relatively stable until the chestnut blight and/or initial timber harvest" (Diamond and Giles 1987: 182). Following initial settlement by the Euro-americans in the eighteenth century, the Appalachian forests underwent rapid deforestation as land was cleared for agriculture, and trees were felled for construction materials, wood products, fuel, and charcoal making (Raitz and Ulack 1984: 70-71). Although the area's original climax forest has been altered by cultural and natural processes, its nature may be deduced from paleoenvironmental research and modern studies of successional trends whereby "plant communities replace one another until a climax equilibrium is reached" (Godfrey 1980:78; see also

Braun 1950). Therefore, the following description of the climax forests covering the Ridge and Valley Province of western Virginia during the late prehistoric and historic periods depends on observations of secondary plant growth and paleoenvironmental research.

Craig county lies within Braun's (1950) Oak-Chestnut Forest Region. The original forest vegetation of this region consisted of chestnut, chestnut oak, black oak, red oak, white oak, tuliptree, and red spruce. The ridge areas were dominated by oak-chestnut forests, although hemlock could be found in steep and shaded areas and deciduous elements were predominate in sheltered coves and ravines (Braun 1950: 197-200; Diamond and Giles 1987: 182). The low-lying valley areas were characterized by white oak and lesser quantities of hickory, tuliptree, black oak, and white pine (Diamond and Giles 1987: 182). The understory within this region was dominated by blueberry, flame azalea, rhododendron, bush-clover, and tick-trefoil (Diamond and Giles 1987: 182). Localized variations within the area corresponded to variations in topography and elevation, as well as type of underlying lithology, permeability of soil, degree of slope, and amount of daily sunlight.

Diamond and Giles (1982:182) have also suggested that Craig County is located in a transition area where a number of mixed-mesophytic vegetation communities, which existed within

the mesic forests of the northern Ridge and Valley Province, began to diminish and grade into the pure mesic forests of the southern Ridge and Valley Province. The addition of a mixed mesophytic community diversified the local vegetation through the incorporation of red oak, red maple, sugar maple, basswood and beech into the canopy, and a variety of ferns and spring geophytes into the accompanying understory (Diamond and Giles 1987:182).

Even though cultural and natural processes may have altered the area's native faunal population over the last millennium, it is doubtful that any changes have been substantial since environmental conditions over this time period have undergone only minor fluctuations. Therefore, a characterization of the area's native faunal population may be approached through modern and historic faunal distribution lists, and analysis of faunal material recovered from archaeological sites.

The native faunal population encountered by Euro-americans during their expansion into and settlement of the Appalachian Mountain region was established subsequent to the Late Pleistocene-Early Holocene extinctions that occurred in North America. Paleontological evidence suggests that the fauna characteristic of the Late Pleistocene-Early Holocene boreal climate began a relatively rapid change at about 9,330 years ago, until a modern faunal assemblage was established by

approximately 7,000 years ago (Guilday 1971:257).

Analyses of faunal material recovered from a number of late prehistoric archaeological sites in southwestern and western Virginia provide the following approximate tally of animal species: 27 species of mammals; 20 species of birds; 22 species of terrestrial and freshwater mollusks; 15 species of freshwater, catadromous and anadromous fish; 11 species of reptiles; three species of amphibians; and one species of crustaceans (Barber and Baroody 1977: 103; Benthall 1969: 144-173; 1990: 86-87; Waselkov 1977: 74-75; Whyte 1989: 214-220). This tally includes white-tailed deer, black bear, mountain lion, dog, wild turkey, ruffled grouse, chubs, shiners, sunfish, yellow perch, channel catfish, and a variety of turtles, snakes, and frogs. These various species commonly inhabit the area today. Notable exceptions, such as passenger pigeon, mountain lion, and elk, are absent due to extirpation, or changes in natural range due to natural and cultural processes. However, since faunal remains from archaeological sites have been filtered by the natural process of differential preservation and the cultural processes of human selection and archaeological data recovery methods, they cannot be considered as truly representative of the entire faunal population existing during the prehistoric time period.

Early historic accounts of the native fauna in the region are quite similar to evidence from prehistoric

archaeological sites. Although the historic records also contain a number of shortcomings (see discussion in Rose 1986:82-84), these documents comprise the only evidence for the presence of bison in Virginia (e.g., Byrd 1967).

Lists of the modern faunal distributions in the Appalachian Mountains attest to the richness of the region in comparison with adjacent areas (e.g., Hubbard 1971; Handley 1971). The modern faunal lists also compare favorably with faunal distribution lists derived from historical documents and archaeological sites. Additions to the modern faunal lists are due to the introduction of new species into the region, as well as recent range expansion of some species due to changing land use patterns. But the overall constancy of the fauna in the Appalachian region from the late prehistoric through the modern time periods is in accordance with associated evidence which suggests that the vegetation and climate of the region have remained relatively stable over the past two or three thousand years.

Lithic and Mineral Resources

The natural environment of Craig County contains an abundance of lithic and mineral resources. These resources are readily available throughout the county, and may be obtained by direct procurement of primary outcrops along the

ridges, and secondary cobble deposits within and adjacent to the drainages. Available resources include high quality lithic materials necessary for the manufacture of prehistoric stone tools, as well as lithic and mineral resources useful for agrarian, commercial, and industrial pursuits during the historic period.

The specific geologic patterns and formations within Craig County have never been intensively analyzed and mapped. The published geologic survey work within the county is limited to Sweet and Wilkes' (1986) analysis of selected high-silica resources. Therefore, this discussion of potential lithic resources within Craig County will rely upon Sweet and Wilkes' (1986) study of selected quartzite and sandstone resources, and will be informed by intensive surveys of surrounding areas (Amato 1974; Bartholomew 1981; McGuire 1970, 1976), as well as more generalized, regional studies (Butts: 1973, Woodward: 1932).

An initial problem regarding lithic materials is the misidentification of raw material types. The problem may stem from the discipline of geology where disagreements exist between geologists over the definitions of materials, and the changing definitions of materials. The problem is carried over to archaeology where it is compounded by the inconsistent usage of raw material type labels by different archaeologists who then perpetuate the problem in the literature. For

example, the term "quartzite" has been used inconsistently in the geologic literature of the area to refer to metamorphosed sandstone and silica-cemented sandstones (see discussion in Dietrich 1970: 45-46). Archaeologists in southwestern and western Virginia have commonly referred to highly silicified ferruginous sandstone as ferruginous quartzite. For the sake of consistency, this report will use the term "quartzite" as a referent for both indurated, silica-cemented sandstone and metamorphosed sandstone.

Quartzite is quite resistant to erosion, so it commonly forms the ridges in the study area and can be found outcropping along these ridges. Additionally, quartzite can be found within the water courses as secondary cobble deposits. Quartzite was used throughout prehistory for the manufacture of stone tools. This rock type, along with associated interbedded shales, was also used as a source of building stone for construction during the historic period.

The following geologic formations containing quartzite are inferred from the regional geological literature to be present in Craig County:

Ridgeley Sandstone - Also referred to as "Oriskany Sandstone" (Butts 1973: 291; Dietrich 1970: 168). A white to tan quartzite/sandstone which varies from medium- to coarse-grained. It is often cemented with iron carbonates, subsequently, weathered forms are stained with iron oxide.

This rock type is variously referred to as a sandstone (Butts 1973: 291) and quartzite (McGuire 1970: 21-22).

Keefer Sandstone - Consists of a fine- to coarse-grained quartzite which grades into a friable sandstone and ranges in color from light-gray and white to tan. In some areas, the beds are very hard and contain discontinuous lenses of ferruginous material (Sweet and Wilkes 1986:13-14; Bartholomew 1981:6).

Rose Hill Formation - Also referred to as the "Clinton Formation" (Dietrich 1970: 168), and the "Cacapon Formation" (Butts 1973:238; see also McGuire 1976:19). It contains orthoquartzite, and hematite-cemented sandstone with interbedded shale and siltstone. The lower half of this formation, between the James and New rivers, contains "highly ferruginous sandstone beds of distinctive character" (Butts 1973:238). These sandstones and quartzites are fine- to coarse-grained, and are light to medium gray and reddish-brown in color. This formation is a component of many of the high ridges within Craig County, including Bald, Johns Creek, Sinking Creek, Potts, and Rich Patch mountains (Sweet and Wilkes 1986:2).

Tuscarora Sandstone - Also referred to as "Clinch Sandstone" (see discussion in Butts 1973: 229-230). This resistant rock is one of the major ridge producers in western Virginia. Within the study area, it is very abundant and is a component

of Bald, Johns Creek, Sinking Creek, and Potts mountains (Sweet and Wilkes 1986:2). Its character varies from fine to coarse grained, and ranges in color from light gray and white to tan. This rock is usually referred to as a quartzite, although complete metamorphism may be lacking at the local level where it may be referred to as a sandstone (Butts 1973:230).

Erwin Quartzite - This rock type displays differential degrees of metamorphism throughout its geographic extent, and, therefore, it varies in character from very hard to friable. Subsequently, this rock is variously referred to as "Antietam Sandstone" and "Erwin Quartzite" (Butts 1973:26). It is fine- to medium-grained, and its color ranges from bluish-gray and light gray to white, although a ferruginous quality is apparent in the upper portion of its strata.

The mineral quartz occurs in a number of different forms, and, consequently, is problematic in identification. The various forms of quartz include vein quartz, jasper, chalcedony, and chert. In this report, chert is considered synonymous with flint. While chert and chalcedony are distinguished in this report, it is recognized that these two materials may grade into one another and be referred to as "chalcedonic chert." Along with quartzite and sandstone, chert is one of the predominate forms of lithic raw material

used for the manufacture of stone tools by the prehistoric inhabitants of Craig County in particular, and southwestern Virginia in general. High quality cherts occur throughout Craig County, and are found in both nodule and bedded forms associated with limestone formations. The limestone formations were also quarried and used extensively during the historic period as sources of building stone, and limestone was burned for agricultural lime and for a fluxing agent in the iron furnaces.

While quartz is ubiquitous in the Piedmont and Blue Ridge provinces, its occurrence in the Ridge and Valley Province is less well known. And most of the geologic literature pertaining to areas surrounding Craig County lack any reference to quartz, although Woodward(1932: 27) reports quartz veins in Montgomery County. Secondary cobbles of quartz are known to occur within the major drainages of the region such as the Roanoke River and the James River, as well as in the larger drainages of Craig County such as Craig Creek. Archaeological site surveys in Craig County, as reported in this volume and in site files, indicate that quartz was used by the prehistoric inhabitants of Craig County, but it is always a minor component of artifact assemblages.

Jasper sources are also not reported in the geologic literature for the Ridge and Valley Province near Craig

County, but they are known to occur in the Blue Ridge Province. Site inventory information for Craig County does indicate that prehistoric artifacts of jasper have been found on some archaeological sites, but these always comprise less than one percent of the site assemblages. Jasper artifacts may have been carried into Craig County while prehistoric populations of the region enacted their seasonal mobility patterns. However, local forms of jasper may occur nearby, and grade into, chert formations underlying iron rich deposits where iron bearing siliceous waters form gels and later recrystallize as jasper. Jasper can be distinguished from chert by its predominantly red, yellow, or brown color.

An additional mineral resource of Craig County which was used extensively during the historic period is "Oriskany Ore." This ore is composed of psilomelane, manganite, and brown limonite (Woodward 1932: 113). It occurs in the Oriskany, Helderberg, and lower Devonian shale formations within the region (Watson 1907: 403, 408). This ore was mined from the early nineteenth century through the early twentieth century in numerous locations throughout Allegheny, Botetourt, Craig, and Giles counties. Known mines in Craig County are the Oriskany Mines, located in eastern Craig and western Botetourt counties, and the Fenwick Mines which were situated on the southern slope of Bald Mountain (Watson 1907: 443, 446).

The following geologic formations containing limestone,

iron ore, and various forms of quartz are inferred from the geologic literature to be present in Craig County:

Huntersville Formation - This formation consists of shale and claystone interbedded with chert. The chert is a high quality, chalcedonic chert is primarily dark gray in color (Amato 1974:18; Bartholomew 1981:5), although a dense, pinkish-white form which weathers brown is known within the area (McGuire 1976:18).

Licking Creek Limestone - McGuire (1970:21) describes this as a "dark gray limestone containing much nodular chert".

Lincolnshire Formation - This formation overlies the New Market Limestone and contains a dark gray limestone with black, nodular chert. (McGuire 1970:13; 1976: 14-15).

New Market Limestone - McGuire (1970:12; 1976:14) describes this limestone as overlying the Beekmantown Formation and containing a dove gray chert with secondary zones of nodular black chert.

Beekmantown Formation - This formation contains thick beds of massive, gray, fine-grained dolomite with weathering residues of light and dark colored chert (McGuire 1970:12; 1976:13).

Helderberg Limestone - This formation contains numerous individual limestone units, some of which hold chert nodules (Butts 1973: 268-291).

Hydrology

A portion of the James River-New River drainage divide is located in the Sinking Creek synclinal valley of central Craig County. This valley is enclosed by Johns Creek and Sinking Creek mountains which give the valley its elongated horseshoe shape. Peak valley floor elevations of approximately 2700 feet above mean sea level are located near the northeastern terminus of the valley, and act to divide the local drainage systems. Sinking Creek flows away from this divide in a southwestern direction until it makes its confluence with the New River. Meadow Creek flows away from this divide in a northeastern direction, through a gap in the enclosing ridge system, and flows into Craig Creek, a tributary of the James River.

The majority of Craig County lies within the James River Drainage basin. All of the surface water of these areas eventually flow into Craig and Potts creeks. These creeks flow in a northeastern direction and eventually make their confluence with the James River in neighboring Allegheny and Botetourt counties.

Significant terrace development is confined to the valleys of the larger watercourses of rank size four and greater. The valley floors of these larger watercourses contain active, well-developed floodplains flanked by an array of alluvial and colluvial terraces and fans.

The small drainages of rank size three and smaller are usually low in volume, short in length, and flow through narrow, v-shaped valleys enclosed by the steep slopes of the ridge systems. These valleys have narrow floors, have formed little or no floodplain, and sometimes contain small, dissected and weathered colluvial terraces.

Various physical characteristics of the local hydrology have changed over time. While many of these changes are due to natural processes, more pronounced and rapid changes correlate with Euro-american settlement and growth during the last 250 years. Recent physical changes to the local hydrology may be examined by comparing various editions of topographic maps which depict the local area. Through time, many low rank tributary streams have been filled in, diverted, contained within man-made drainages, or rechanneled by natural processes. In conjunction with such changes additional alterations in the hydrology have been more pronounced.

Several changes in the local environment of the project area have occurred through natural and cultural processes. Recognizing changes in the local environment may be gained through an understanding of natural hydrological processes, and culturally induced processes. This understanding is a necessary component of archaeological survey as it allows for a more complete interpretation of the archaeological record. For example, many previously existing springs have ceased to

flow due to fluctuating moisture regimes throughout the prehistoric time period. Land development following Euro-american settlement has resulted in increased sheet erosion and surface runoff which, subsequently, promoted variation in sediment yield and channel configuration of the larger watercourses. Continued deforestation and urban development during this cycle of land-use has decreased sediment yields while increasing surface runoff to encourage channel widening and bank erosion.

While the destructive effects of flood waters on archaeological resources are well known, other processes include land development and agricultural practices which increase sheet erosion and promote the destruction or vertical displacement of cultural resources, and culturally induced amplification of natural river meandering which increases lateral bank cutting to impact cultural resources.

Soils

The specific soils and their distributions in Craig County have never been intensively analyzed or mapped. But in the recent past a low intensity soil survey was undertaken in the county. The survey covered the entire geographic extent of the county. But sediment coring was minimal, therefore, subsequent analyses and mapping of the different soils were

very general in nature. The survey resulted in the recognition of fifteen individual soil series grouped into seven soil associations. These soil associations were further combined into four groups based on shared landscape features, and the geographic distribution of the soil association groups were plotted on a county map (Soil Conservation Service 1982; Figure 2.3). The following generalized discussion of the soils in Craig County is based on these groups of soil associations as distributed over the county's varied landscape.

Soils covering the sloping to very steep terrain of the ridge systems occupy the largest surface area of Craig County. The soils in these areas are grouped into six series and three associations. The soil associations include: the Dekalb-Lehew-Weikert association; the Weikert-Berks association; and the Dekalb-Lily-Lehew-Jefferson association. The loamy soils which comprise these soil associations are derived directly from the weathered, underlying bedrock of sandstones, quartzites, and shales. They are characteristically low in mineral content and plant nutrients due to the acidic parent materials. The majority of the soils are colluvium washed down from higher elevations and deposited on slopes, benches, and in depressions. Runoff, moisture permeability, and profile depth of the soils vary, but may be correlated with

SOIL ASSOCIATIONS

DOMINANTLY GENTLY SLOPING TO VERY STEEP SOILS THAT ARE DEEP TO SHALLOW, AND WELL DRAINED TO EXCESSIVELY DRAINED.

1. Frederick-Lodi-Clarksville-Hayter: Loamy and clayey soils that are gently sloping to steep, deep, and well and somewhat excessively drained; formed in material weathered from limestone, and in old colluvial deposits.
2. Sandridge-Berks-Hayter: Loamy and clayey soils that are sloping to very steep; formed in material weathered from limestone and shale, and old colluvial deposits.

DOMINANTLY LEVEL TO SLOPING SOILS THAT ARE DEEP, AND WELL DRAINED TO VERY POORLY DRAINED.

3. Monongahela-Purdy-Chavies-Pope: Loamy and clayey soils formed in recent and old alluvial deposits.

DOMINANTLY SLOPING TO VERY STEEP SOILS THAT ARE DEEP TO SHALLOW, AND WELL DRAINED TO EXCESSIVELY DRAINED.

4. Dekalb-Lehew-Weikert: Loamy soils that are moderately deep and shallow; formed in material weathered from sandstone and shale.
5. Weikert-Berks: Loamy soils that are moderately deep and shallow and well drained; formed in material weathered from shale.
6. Dekalb-Lily-Lehew-Jefferson: Loamy soils that are deep and moderately deep; formed in material weathered from sandstone and shale, and in old colluvial deposits.

DOMINANTLY GENTLY SLOPING TO STEEP SOILS THAT ARE DEEP AND SHALLOW, AND WELL DRAINED.

7. Jefferson-Weikert: Loamy soils that formed in material weathered from shale and in old colluvial deposits.

* The texture given in the descriptive heading refers to the texture of the subsoil of the major soils in each map unit.

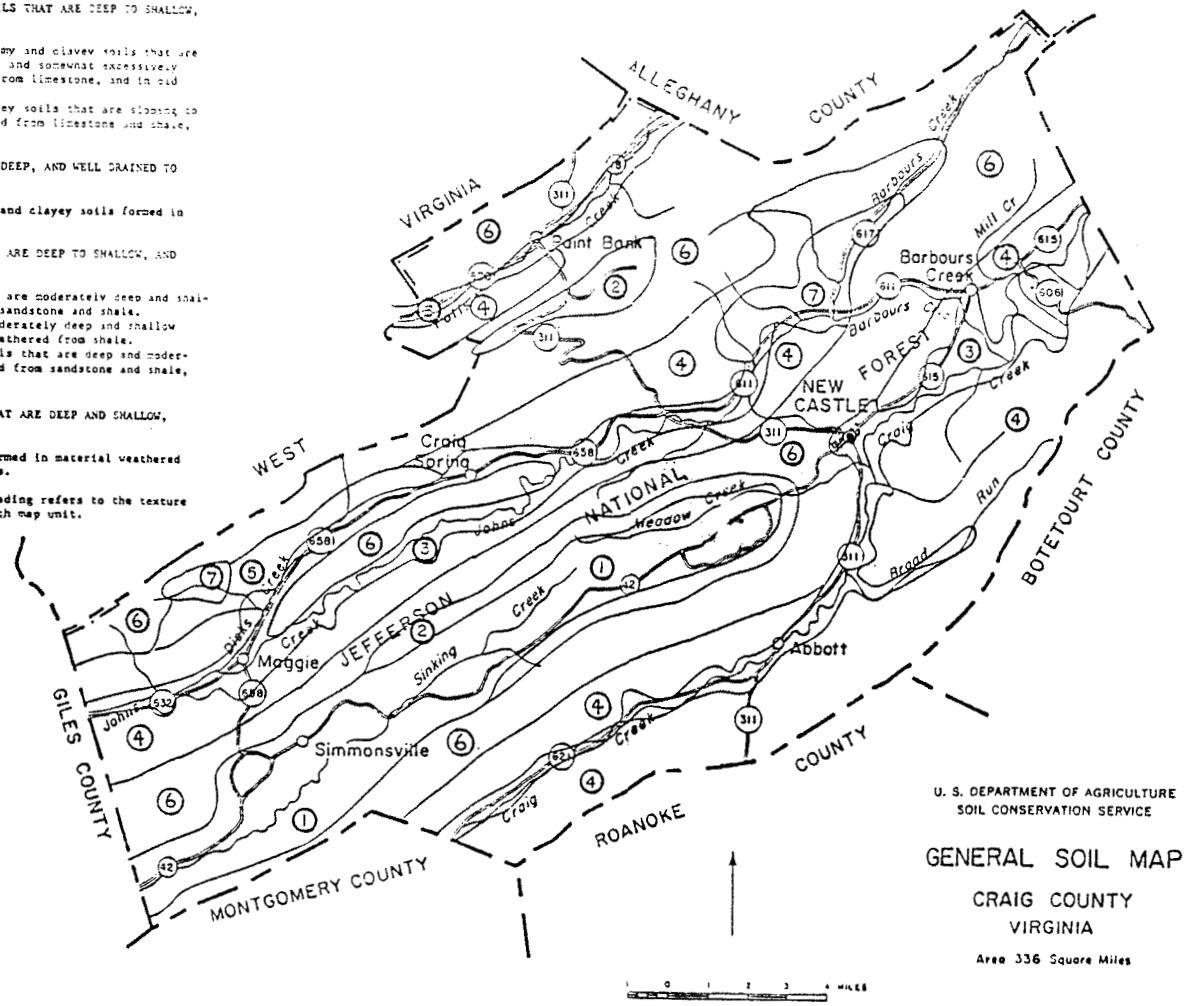

Figure 2.3. General soil map of Craig County.

degree of relief. Soils on the tops and slopes of the ridges are comparatively shallow to bedrock, and are heavily intermixed with eroding rock fragments. Soil deflation is generally pronounced due to the combined effects of relief and runoff. These factors render the soil usage primarily to forest cover. These factors present situations in which preserved organic materials are unlikely to be found in an archaeological context. Furthermore, undisturbed, buried archaeological sites are expected to be rare.

On many of the ridge benches, slope bases, and tops of the low elevation ridge spurs, continuous colluvial action contributes to the prolonged development of relatively deep soil accumulations. Most of these areas contain soils deep enough to plow; however, the majority are used as pasturage, or covered with forest. Many of these landforms are suitable for, and contain evidence of, human occupation and use. Buried archaeological sites are expected to be found where relatively deep soil accumulations are found. However, preserved organic materials are not likely to be found in an archaeological context due to the acidic nature of the soils.

Soils in the valley bottoms of the major watercourses occupy the second largest surface area of Craig County. These soils are grouped into four soil series, which together form the Monongahela-Purdy-Chavies-Pope soil association. The floodplains and lower terraces are covered with sandy loams of

alluvial origin. Higher terraces, near the junctions of the ridge slopes, are covered by loamy and clayey soils formed of both alluvium and colluvium. The soils on all of these landforms have fairly deep, well-developed profiles, and vary from well drained to poorly drained.

Soils of the floodplain areas have been formed from relatively recent alluvium. These soils are generally well drained, although the degree of moisture permeability may vary according to proximity to flowing water and minor differences in floodplain relief. These soils generally occupy areas only three to fifteen feet higher than the normal level of the larger watercourses. Consequently, they are commonly inundated, and subject to scouring and continuous deposition.

The intensity of floodplain scouring and alluvial deposition will vary in relation to the volume and velocity of flood waters, and to the degree of local floodplain relief. Although alluvial deposition along the drainages of the county appears to have occurred continuously through time, it does not appear to be substantial in depth, and scouring has been restricted to small and isolated areas with little or no vegetation during episodes of intense flooding.

Soils on the first bottoms of the floodplains and on the higher floodplain elevations occupy areas in which preserved organic materials are likely to be found in an archaeological context. Although the plow zones of floodplain areas have

been built-up following Euro-american settlement, they are likely to contain artifactual material disturbed by initial plowing. Nonetheless, it appears that floodplains are the most likely areas within the county where undisturbed, buried archaeological sites may be found with good preservation of organic materials.

Soils of the terraces which immediately overlook the floodplains are formed of older alluvium with admixtures of colluvium. These soils generally occupy landforms five to thirty-five feet higher than the adjacent floodplains. Consequently, they are rarely inundated by flood waters. These terraces generally hold relatively deep accumulations of soil with well developed profiles. While the relative depth of soils on the terraces increases the likelihood of undisturbed archaeological sites, their generally acidic nature decreases the chance that the sites may contain preserved organic materials.

The third soil group is similar in nature and size to the preceding soil group, but it is geographically restricted to two areas within the county. This group contains six soil series which form two soil associations. The Frederick-Lodi-Clarksville-Hayter soil association covers the Sinking Creek Valley in the central and southwestern areas of the county, and the Dandridge-Berks-Hayter soil association is restricted to a small geographic area between Potts Creek and Potts

Mountain in the north central portion of the county. The loamy and clayey soils which comprise these two soil associations are derived directly from weathered, underlying limestone and limestone formations containing shale. These soils are associated with the headwaters of low rank size drainages which easily erode through the limestone formations. Therefore, the soils occupy a rolling and undulating landscape. Since the adjacent drainages are of low rank sizes, deposition and scouring from flood waters is minimal to nonexistent. The soils are generally well drained although excessive drainage may occur in close proximity to flowing water. These soils are collectively considered to be quite fertile and productive (Raitz and Ulach 1984: 65). Although soil accumulations on the floodplains and terraces have generally reached a depth permissive of plowing, they are not deep enough to protect archaeological sites from plow disturbance. Soils on the ridge slopes and benches are fairly rich, however, the shallow depth of the soils renders most of these areas useful only as pasturage.

The final soil group is restricted to a small surface area in two locations of the county. These soils have been grouped into two soil series which form the Jefferson-Weikert soil association. These loamy soils are derived directly from underlying shale deposits, and indirectly from colluvium which has accumulated in small valleys formed by the discontinuous

nature of the ridge systems.

Soils in these small valleys occupy terrain where surface relief varies from gently to steeply sloping. Soil profile depth, degree of moisture permeability and agricultural productivity all decrease as degree of slope increases. While archaeological sites may be expected in these areas it is unlikely that soil accumulations are deep enough to protect the archaeological remains from plow disturbance or erosion.

CHAPTER THREE

AN OVERVIEW OF THE PREHISTORY AND HISTORY OF THE CRAIG COUNTY REGION

A Regional Prehistory of Craig County

The Paleoindian period refers to the period of initial colonization, exploration, and settlement of the North American continent by American Indians. Although an increasing body of radiocarbon dates suggest that the New World was initially colonized between 12,000 and 20,000 years ago, in Virginia there is no firm evidence of human occupation before 9,500 B.C. (Gardner 1989: 9; Barber and Barfield 1989: 55). Therefore, the Paleoindian period in Virginia is generally believed to begin at approximately 9,500 B.C.

While it is likely that the history of human occupation in Craig County did begin in the Paleoindian period, no diagnostic artifacts dating to this period have been recorded in the county (McCary 1983: 68; 1987). In counties adjacent to Craig County, the earliest recognizable archaeological materials are artifacts typical of the Paleoindian period. These artifacts include a series of diagnostic fluted and unfluted projectile points, as well as a variety of distinctive cutting and scraping implements fashioned from

small flakes of stone (Johnson 1989: 100-121).

The most reliable documentation of the Paleoindian occupation in Virginia is derived from the investigations of a group of sites in the northern Shenandoah Valley referred to as the Flint Run Complex (Gardner 1974, 1983). Excavations at these sites have resulted in the identification of three chronological subdivisions within the Paleoindian period. These subdivisions are defined on the basis of different diagnostic artifacts and associated manufacturing techniques, and are termed the Clovis, the Mid-Paleo, and the Dalton-Hardaway (Gardner 1974: 38; Gardner and Verrey 1979). This tripartite division of the Paleoindian period is generally accepted for eastern North America, but its details remain to be confirmed through continued excavations and radiocarbon dates. The divisions of the period are generally felt to correspond to the initial colonization and exploration of the New World, the establishment of regional populations within large territories, and changing adaptations to the emerging Holocene conditions (Anderson 1990: 164-166).

The projectile points characteristic of the Clovis and Mid-Paleo components of the Paleoindian period bear remarkable stylistic similarity throughout the southeastern and middle-Atlantic regions of North America (Smith 1986: 7). This stylistic similarity has traditionally been interpreted as indicative of similar economic adaptations centered on the

nomadic pursuit of large game. However, more recent interpretations suggest widespread social interaction and the sharing of ideas between various social groups who enacted a pattern of settlement characterized by widespread mobility between dispersed settlements within loosely defined territories (e.g., Anderson 1990:181; Turner 1989).

These attributes, in conjunction with the characteristic Paleoindian stone tool assemblage, suggest an economy centered on a generalized hunting and gathering system. This hunting and gathering system probably included the hunting of a variety of small and large mammals, as well as the collection of a variety of plants and fish (Kauffman and Dent 1982: 10; Smith 1986: 10-13). But the pan-regional similarity between projectile points and associated toolkits does not necessarily imply a homogeneous adaptation to the emerging Holocene environments. The emerging Holocene environments of eastern North America were neither temporally nor spatially homogeneous (Smith 1986: 3-5,9; Custer 1990: 7-8). Therefore, regionally specific economic adaptations are expected throughout eastern North America.

The apparent reliance on cryptocrystalline lithic materials for stone tool manufacture during the Paleoindian period may suggest a "logistical" mobility pattern in which group movements throughout each year were structured around one or more sources of cryptocrystalline stone (Gardner 1989;

Custer 1990: 23). In this model, manufactured stone tools were transported during subsistence related movements to seasonal base camps. Task groups would radiate out from the base camps into the local area to undertake subsistence and maintenance activities. But as toolkits became depleted, group movement and a new base camp location were directed to a predetermined stone quarry for toolkit replenishment. However, the abundance of locally available crystalline stone in the Craig County region could have facilitated a "residential" mobility pattern in which the frequent movement of a group's residence was directed by subsistence and social activities with toolkit replenishment easily conducted within any localized area. Either of these models, or a combination of both, may account for the varying interpretations of Paleoindian site locations (see Anderson and Hanson 1988: 264-266; and Hantman 1990: 141).

The popular image of Paleoindians as the hunters of large megafauna, such as mammoths and mastodons, has been given only meager support from archaeological research in eastern North America (Anderson 1990: 179-180). Although the environment of Virginia during the early part of the Paleoindian period was conducive to the viability of these large megafauna (Boyd 1989), there is no evidence to suggest that these large mammals of the Late Pleistocene were hunted in Virginia.

Evidence for the human occupation of Craig County during

the Paleoindian period does not exist, and artifacts diagnostic of the Paleoindian period were not recovered during the Craig County survey. The absence of Paleoindian sites in the county may be due to cultural factors, but is more likely due to factors of archaeological methodology including survey bias and current methods of site discovery.

In the traditional sequence of culture history the Paleoindian period is followed by the Early Archaic period. However, numerous archaeologists have recently argued that continuity rather than change characterizes the social dynamics between the traditionally separated Paleoindian period (9,500 - 8,000 B.C.) and the Early Archaic period (8,000 - 6,500 B.C.) in the southeastern and mid-Atlantic areas of North America (Smith 1986: 10; Gardner 1989; Custer 1990). The emergence of early Holocene environments and modern faunal assemblages began during the late Pleistocene and were established by 6,550 B.C. (Carbone 1976: 121, 187; Delcourt and Delcourt 1985: 19; Guilday 1971: 257). Throughout this time period, the

> "post-Pleistocene fluted point and subsequent Dalton through LeCroy populations [exhibit] general similarities and regional habitat-related variation in settlement-subsistence patterns and material culture assemblages" (Smith 1986: 10, brackets added; see also Geier 1990: 86-87).

Additions to the artifact assemblage of this time period include a wide variety of corner-notched and side-notched

projectile points, chipped stone axes, and ground stone mortars, pestles, gouges, and pitted stones (Egloff and McAvoy 1990: 64; Geier 1990: 87-88). Projectile point types for this period include Palmer, Kessel, Charleston, Amos, Kirk, St. Albans, LeCroy, and Kanawha. Although temporal change in projectile point morphology between the Paleoindian and Early Archaic periods has been documented for the western Virginia area (Coe 1964; Broyles 1971; Chapman 1973, 1975, 1977), "this artifact class, however, appears to have remained functionally unchanged throughout the early Holocene" (Smith 1986: 10).

Along with the increasing diversity of projectile point styles, there is an increase in the frequency of sites from 8,000 B.C. through 6,500 B.C. These two factors are commonly interpreted as an indication of the continued increase of population numbers, and the development of cultural regionalization within eastern North America (Hantman 1990: 142). However, there is an apparent persistence of the earlier hunter/gatherer settlement and subsistence pattern of widespread mobility between dispersed, short term settlements within loosely defined territories. The persistence of the earlier Paleoindian pattern of heavily curated stone tools is modified by a greater reliance on the use of a variety of locally available lithic materials for stone tool manufacture during this time period. This may suggest that a combination of logistical and residential foraging strategies was operant

during this time period.

The Early Archaic period is followed by the Middle Archaic period (6,500 - 3,000 B.C.) in the traditional cultural sequence for eastern North America. Unlike the previous cultural periods, recent archaeological research has provided little modification to the original definition of the Middle Archaic period. While the archaeological record suggests an overall continuation of the hunting and gathering economic system, technological changes in lithic artifact assemblages and perceived changes in settlement patterns and paleoenvironments define the Middle Archaic period.

Lithic assemblages of the Middle Archaic period exhibit a greater variety of tool types relative to earlier periods. The introduction of new tool types, such as atlatl weights and net sinkers, accompanies a dramatic increase in the frequency of ground stone tools such as mortars, pestles, pitted stones, and axes (Egloff and McAvoy 1990: 64; Geier 1990: 91-92).

Middle Archaic period lithic assemblages exhibit a near total reliance on locally available rocks, especially non-cryptocrystalline rocks. The stone tools on Middle Archaic sites of western Virginia are almost exclusively made from locally available quartzites and indurated sandstones.

Lithic assemblages during the beginning of the Middle Archaic period also suggest a rapid replacement of unifacial tools by bifacial tools (Geier 1990: 91-92). And the

relatively small bladed and heavily curated projectile points of the Early Archaic period are replaced by minimally curated forms with larger blades. This shift is initiated by Stanly projectile points which may persist from the latter portion of the Early Archaic through the beginning of the Middle Archaic period. Lithic assemblages associated with Stanly points include a variety of unifacial tools (Geier 1990: 91). These are followed by lithic assemblages characterized by Morrow Mountain, Guilford, and possible Cedar Creek projectile point forms which also exhibit an increased frequency of bifacial tools (Geier 1990: 92; for discussion of Cedar Creek points, see Benthall 1990: 57, 82).

The Middle Archaic period is believed to coincide with the Atlantic climatic episode (Carbone 1976: 122). This climatic episode is characterized by a general trend of warmer temperatures and increased moisture levels. The specific effects of these climatic changes include the northward spread of deciduous forest elements and the development of habitats conducive to shellfish populations. The archaeological correlates of these environmental changes appear in subsistence information which includes an increased reliance on hickory nuts and the exploitation of shellfish throughout Virginia and southeastern North America (Egloff and McAvoy 1990: 64; Smith 1986).

The continual increases in site frequencies and the

inter-regional diversity of projectile point styles throughout eastern North America are commonly interpreted as a continuation of rising population levels and cultural regionalization (Custer 1990:38; Hantman 1990: 143).

In western Virginia, Middle Archaic site locations are evenly divided between the upland and alluvial valley areas. Sites located in the upland areas are evenly distributed over the natural topography suggesting a broad utilization of resource areas. And sites in the alluvial valleys are commonly located along terrace complexes bordering the streams (Klein and Klatka 1989). These patterns of site location suggest the seasonal exploitation of both riverine and upland resources. It is likely that these subsistence routines were conducted by regional populations who employed numerous temporary base camps from which small task groups radiated out to ephemeral procurement sites. However, interpretations of Middle Archaic settlement patterns are controversial.

Many interpretations of Middle Archaic settlement patterns rely on paleoenvironmental information to argue for the development of an upland-lowland settlement dichotomy. These schemes posit a logistical settlement system with increasing group permanence in base camps located in alluvial valley areas, and the use of numerous satellite encampments situated over a broad range of upland areas for resource activities (e.g., Gardner 1984: 128; Custer 1990). Different

interpretations of the archaeological record suggest the use of a residential settlement system with a higher degree of mobility between numerous short term base camps situated in a broad range of upland and lowland topographic areas (e.g., Claggett and Cable 1982: 671-687).

Mortuary information from archaeological sites in southeastern North America indicate a shift from secondary deposits of cremated bones to flexed, primary interments (Smith 1986: 26). Mortuary information has also been used to argue for increasing sedentism and the absence of status differentiation in Middle Archaic populations (Smith 1986: 26). The lack of mortuary data from more local Middle Archaic sites precludes discussion of the presence of similar trends in the social evolution of Middle Archaic populations within the Middle Atlantic area.

The Middle Archaic period is followed by the Late Archaic period (3,000 - 1,200 B.C.) in the traditional sequence of culture history. The Late Archaic is an intensively studied, yet problematic, period in the prehistory of eastern North America. Although various interpretations of the Late Archaic archaeological record have been advanced, no consensus of Late Archaic social evolution has emerged. This lack of consensus stems from the recognition of considerable geographical variation in the specific timing and magnitude of the social changes which occurred during this period of prehistory (cf.,

Mouer 1989; Nash 1989). However, a discussion of the nature of the Late Archaic period can be approached through commonly accepted general trends of this period. These trends include: increased sedentism, population growth, and cultural regionalization; intensified exploitation of riverine resources; increased reliance on storage; development of extensive exchange systems; and technological changes related to these trends (Smith 1986).

Late Archaic period adaptations have been viewed as focused on riverine resources, and as the maximum exploitation of upland environments. An explanation of this apparent contradiction is often approached through a modification of the logistical mobility strategy which existed during earlier periods of prehistory (e.g., Custer 1988). This modification entails an upland/lowland settlement dichotomy with large, semi-sedentary basecamps located along terraces and floodplains of the large watercourses. The use of the upland areas is accomplished either through direct forays of small task groups to small resource procurement sites in the interior areas, or through the travel of larger task groups which establish short term encampments in the interior areas and from which small task groups radiate out to numerous transitory resource procurement sites (Custer 1988: 45). The overall site location patterns produced by this riverine focus have been interpreted as a product of linear settlement

patterns, stretched along the river valleys and the nearby upland areas, with adjacent linear settlements linked through social interaction (Mouer 1989).

In western Virginia, the general pattern of Middle Archaic period site locations for upland and lowland areas appears to persist into the Late Archaic period (Klein and Klatka 1989). However, over one half of the total Late Archaic sites are located on terrace complexes and floodplains in alluvial settings. This suggests that earlier site location patterns became modified during the Late Archaic period by a trend toward a greater orientation of site locations to the alluvial valleys. This temporal trend in land use patterns is similar to trends noted for the piedmont and coastal areas of Virginia (Klein and Klatka 1989).

Interpretive hypotheses regarding site location patterns are informed by excavation data. The limited amount of excavation data from western Virginia sites of the Late Archaic/Early Woodland periods suggest that alluvial valley areas underwent short term use as inferred from the presence of only a few hearths, and the absence of storage features and midden accumulation (Benthall 1969; Gardner 1983). But this inference may reflect post-depositional processes, rather than prehistoric land use patterns. While a number of small, Middle Archaic and Late Archaic sites have been recorded on floodplains, their discovery through surface collections from

plowed fields may indicate shallow burial; a condition which increases accessibility to erosive factors.

Excavation data from other areas of Virginia include shell midden accumulation, and a variety of hearths and small pits (McLearen 1989) which may suggest that a semi-sedentary settlement pattern existed in some regions.

The development of horticultural practices has been traditionally linked to a sedentary lifestyle and an increased use of alluvial valley areas for settlements. Incipient horticulture of squash, gourds, and sunflower, as well as the selective harvesting of various seeds, appears to have developed during the Late Archaic period of eastern North America. While these practices likely constituted only a minor portion of the diet, they are considered significant to social evolution during subsequent periods of prehistory, The lack of floral remains from Late Archaic sites in Virginia is most likely a product of current artifact/ecofact recovery methods rather than prehistoric cultural practices.

Technological changes in Late Archaic stone tool assemblages appear to reflect the shifts in settlement and subsistence practices of this period. An increased frequency of ground stone tools such as mortars, axes, adzes, and gouges are presumed indicative of plant processing and woodworking (Custer 1988: 45-46). And the presence of storage pits may also suggest an increased reliance of plant foods.

Another modification of the stone tool assemblage of the Late Archaic period is the development of a broad-bladed tradition of hafted bifaces. These multipurpose tools are almost exclusively made of locally available quartzites and indurated sandstones. And the distribution of the various broad-bladed bifaces in eastern North America has been used to argue for the increased development of stylistic regionalization and the formation of relatively impermeable social boundaries (e.g., Gardner 1984: 131-132). The diagnostic broad-bladed hafted biface for the western Virginia area is the Savannah River type. A variety of additional hafted bifaces, commonly referred to as projectile points, are also diagnostic of this time period. Diagnostic forms in western Virginia include Brewerton, Iddins, Ottare, Merom, Lamoka, and Small Savannah River.

The occurrence of bowls carved from soapstone is another noteworthy technological development of the Late Archaic period. These rather cumbersome vessels presumably permit more efficient cooking of plant foods by direct boiling. Since the frequency and distribution of stone bowls on Late Archaic sites appear to be correlated with relative distance to outcrop sources, the presence of soapstone vessels on sites far removed from outcrop areas is considered to be indicative of elementary exchange networks that increased in complexity and composition during subsequent cultural periods.

The excavation of a number of archaeological sites in southeastern and northeastern North America has provided evidence indicative of a variety of regionally specific mortuary practices operant during the Late Archaic period (Smith 1986: 45-50). This evidence has also been used to argue for increasing sedentism, and the development of social differentiation. The lack of mortuary data from more local Late Archaic sites precludes discussion of the presence of similar trends in the social evolution of Late Archaic populations within the western Virginia area.

The Early Woodland (1,200 B.C. - 500 B.C.) period traditionally follows the Late Archaic period. The Early Woodland period is also traditionally defined by the continued development of horticulture, the continued differentiation of social positions, and the presence of a ceramic technology. While ceramic technology is often considered the defining element of the Early Woodland period, this time period is also signalled archaeologically by a intensification of those changes which began in the Late Archaic.

The settlement focus on alluvial valley areas during the Late Archaic period appears to have continued into the Early Woodland period. However, in western Virginia this pattern is intensified during the Early Woodland period with 73% of the known sites located on the floodplains and terraces adjacent to the major watercourses (Klein and Klatka 1989). The sites

likely include small- to medium-sized semipermanent to permanent villages, as well as a number of small and temporarily used stations for fishing, gathering, and hunting. In addition to these riverine sites, the general settlement pattern of this time period also encompassed a variety of small, perhaps seasonally used, sites located in the interriverine upland areas. Analysis of excavation data from sites throughout Virginia has lead to the identification of permanent Early Woodland settlements for, at least, the northern and central Piedmont, the Shenandoah Valley, and the southeastern Coastal Plain of Virginia (Mouer 1989).

The excavation of a number of Early Woodland sites in Virginia has provided little evidence to inform any discussion of the nature of mortuary practices, or the presence of social differentiation or exchange systems (Klein and Klatka 1989). In contrast to meager information regarding mortuary practices and exchange systems, there is sufficient evidence to indicate a number of changes in subsistence-related technologies which initiated important and long term effects on subsequent regional populations.

The study of Early Woodland stone tool assemblages is problematic due to a blending of the morphological attributes of projectile point forms, the persistence of some projectile point forms from the Late Archaic through the Middle Woodland periods, and a general lack of associated radiocarbon dates

(Klein and Klatka 1989). Projectile point forms which may be indicative of the Early Woodland period in western Virginia include Small Savannah River, the Fishtail varieties, Rossville/Piscataway, Calvert, Potts, and perhaps an array of poorly understood triangular, notched, and stemmed forms. Overall, these projectile point forms exhibit a trend of size reduction in comparison to Late Archaic period forms.

Analysis of excavation data may indicate a general de-emphasis of lithic toolkits as inferred from high ratios of finished tools to debitage (McLearen 1989). In contrast, the increased frequency and diversity of bone tools may indicate an alternative emphasis on a bone industry (McLearen 1989). However, it is not known whether this change is a reflection of cultural practices, or the enhanced preservation of organic materials in floodplain settings.

Throughout Virginia strong evidence exists for the development of regionally specific ceramic technologies. Based upon spatial and temporal variation in ceramic manufacturing techniques, such as temper type, vessel form, and surface treatment, a number of regionally distinctive social populations have been inferred for Virginia (Mouer 1989). Apparently, pottery production in western Virginia did not become widely accepted until the first millennium B.C. (Boyd 1986: 73; Egloff 1987: 48). The ceramic types in western Virginia which are indicative of the Early Woodland

period include Hyco, Vincent (Mouer 1989), Marcey Creek, and Swannanoa (Nash 1989). Although ceramic vessels may have permitted the large scale processing of mast, nuts, and plant foods, the basis of this subsistence element is not dependent upon ceramics. This basic subsistence practice could have been easily conducted during preceramic contexts with steatite vessels, or hide containers (Smith 1986: 43). Although the development and acceptance of ceramic production has been viewed as a technological improvement over steatite vessels, the innovation of ceramic production may be a product of the low availability of steatite vessels in certain areas, and fluctuations in the intensity and extent of steatite exchange spheres coupled with the inability of existing technologies to meet the increased demand for vessels due to shifting subsistence practices (Brown 1989: 214-220; see Smith 1986: 43).

Interpretations of the Early Woodland period in Virginia usually rest upon discussions of the nature and chronological ordering of artifact assemblages, and site location patterns. Beyond these lengthy discussions there is relatively little evidence available for the interpretation of social evolution during the Early Woodland period in Virginia.

The Early Woodland period is traditionally followed by the Middle Woodland period (500 B.C. - A.D. 900), a relatively lengthy yet poorly understood period in regional prehistory.

On a regional level there appears to be considerable geographic variation in the timing, extent, and duration of social changes which appear in this period of prehistory in eastern North America. Within the region of western Virginia, this time period corresponds to a settlement pattern focus on riverine areas, an elaboration and intensification of exchange systems, the construction of burial mounds, and the presence of social differentiation as inferred from burial ceremonialism.

The settlement pattern for the Middle Woodland period of western Virginia appears to be related to a developmental continuum of patterns advanced during the Late Archaic period and intensified during the Early Woodland period. The overall settlement focus appears to be on floodplains and terraces adjacent to the major watercourses. These alluvial valley sites likely include small- to medium-sized semipermanent to permanent villages, as well as a number of small, temporarily used fishing, gathering, and hunting stations. Settlements are still, for the most part, relatively small and dispersed. In addition to these riverine sites, the general settlement pattern of this time period also encompasses a variety of small, perhaps seasonally used, exploitative and procurement sites located in the interriverine upland areas.

While a basic temporal variation in ceramic assemblages has been documented for the northern part of the Shenandoah

Valley (Gardner 1982: 69), sustained variatons in vessel temper types, surface treatments, and decorations, are apparent in the ceramic assemblages throughout the entire Middle Woodland period in southwestern Virginia (Egloff 1987: 6-8, 48). It is currently difficult to discuss the Middle Woodland ceramics for the Craig County region in western Virginia due to the poor level of refinement in local ceramic typologies for chronology construction.

The dominant characteristics of lithic assemblages for Middle Woodland sites include an overall reduction in the size of projectile points and a high frequency of triangular forms. These trends are generally considered to be a reflection of the widespread adoption and acceptance of the bow and arrow. However, any clarity in these trends is rendered indistinct by the apparent persistence of some earlier projectile point forms, such as the Potts, Swannanoa, and large triangular forms, into this time period. Additionally, the Jack's Reef corner notched and pentagonal projectile point types are introduced in the latter portion of the Middle Woodland period, but these projectile point types do not appear to be common in Craig County.

The Middle Woodland period of the Shenandoah Valley region of western Virginia has been divided into two distinct periods, termed the Middle Woodland I (500 B.C.to A.D. 200) and the Middle Woodland II (A.D. 200 to 900). The evidence

supporting this division is centered on mortuary information. The Middle Woodland I period is characterized by the mortuary ceremonialism of the Stone Burial Mound Complex which is considered indicative of social differentiation, extensive trade networks, and social interaction (Gardner 1982: 71-72; 1984: 134).

However, during the latter Middle Woodland period, burial mounds are no longer in evidence while trade and social interaction appears minimal. Such cycling in patterns of socio-cultural change is not unusual in eastern North American prehistory, and is therefore not an incredulous pattern for the Shenandoah Valley. However, this mortuary ceremonialism and its associated social implications does not appear to extend southward to the Craig County area.

The Middle Woodland period is followed by the Late Woodland period (A.D. 900 - circa A.D. 1600) in the traditional culture history sequence for eastern North America. In the southeastern and midwestern areas of North America, this is the period of Mississippian efflorescence. Its influence appears to extend into southwestern, and perhaps western, Virginia as evidenced by a platform mound in Lee County and a rather wide distribution of modified marine shells bearing resemblance to the dramatic Mississippian stylistic expressions (Holland n.d.: 196-203; Waselkov 1989). In southwestern Virginia, this time period is further

characterized by the intensification of a horticultural subsistence system, increasing sedentism and population growth, the development of regional ceramic traditions, an increase in the degree and extent of exchange systems, the development of multi-tiered settlement hierarchies focused along major watercourses, and the construction of accretional burial mounds (Egloff 1990; MacCord 1986; Turner 1983).

The excavation of a number of Late Woodland sites in the Craig County region has provided a great deal of information regarding material culture, subsistence practices, and community organization (see review in Egloff 1990). Although past excavation methodologies have rarely included techniqes for the recovery of floral remains, the evidence for horticultural intensification is consistently present throughout the local region. The regional subsistence system appears to be based upon the horticulture of maize, beans, and squash. This subsistence base is heavily supplemented by hunting, fishing, and gathering.

For this time period, the presence of large, permanent village sites with numerous subsurface features are common. The plan of typical Late Woodland villages consists of an open "plaza" area bounded by circular or oval houses arranged in a circular pattern and often surrounded by a palisade. The central, open "plaza" areas rarely contain structural or artifactual information, and are therefore considered to have

been used for communal and/or ritual purposes. House interiors usually contain hearths and storage pits, while the areas surrounding house structures often hold numerous pit features, including burial pits.

The distributional patterns and compositions of Late Woodland site types have been interpreted as suggestive of conical-hierarchical settlement arrangements which are characteristic of eastern North American chiefdoms (Turner 1983: 274). These arrangements are distinguished by the centralized coordination of social, economic, political, and religious activities. In western and southwestern Virginia, this pattern is manifest by two types of residential sites usually situated adjacent to the primary watercourses, and a broad array of smaller, functionally diverse sites located throughout the contiguous upland areas. The residential sites appear to include a limited number of large agricultural villages dispersed throughout a region, and interspersed by smaller, more numerous agricultural settlements, termed hamlets. Seasonal task groups radiate out from these villages and hamlets to establish numerous exploitative and resource procurement sites of differing sizes and for differing durations of use (Turner 1983:274). Additional site types are pictographs and mortuary sites, including burial caves in far southwestern Virginia (Egloff 1990), and accretional burial mounds in central and western Virginia (MacCord 1986).

While the majority of Late Woodland villages and hamlets are located in alluvial valleys adjacent to the primary watercourses, others are located in a range of upland settings, which include gently sloping valley floors, ridge and hill tops, and plateaus (Egloff 1990). Further inspection of these various upland settings has indicated close proximity to gaps in ridge systems, and to drainage divides where upland valleys merge (Egloff 1990). Regardless of topographic setting, the residential sites of the Late Woodland period are generally inferred to be located along major routes of trade and communication (Bott 1981: 38-39; Egloff 1990) as a means of integrating regional and pan-regional socio-cultural systems.

The development of distinct ceramic traditions inferred for western and southwestern Virginia suggest an increased regionalization of socio-cultural groups (Egloff 1990). These ceramic traditions include: the Eastern Woodland tradition characterized by cord, net, and corncob impressed wares which are tempered with sand, soapstone, shell, and limestone; the Southern Appalachian Complicated Stamped tradition which bears rectilinear and curvilinear designs on sand tempered wares; and the Mississippian Shell Tempered tradition with plain and cord impressed ceramic wares (Egloff 1990). The localized blending of the attributes of these ceramic traditions has been used to infer regional patterns of

interaction between the various socio-cultural groups in western and southwestern Virginia (Egloff 1990).

The lithic assemblage of Late Woodland sites is unquestionably dominated by the presence of relatively small and thin triangular projectile points. Common projectile point types include Yadkin, Madison, and Clarksville. Other stone tools include: bifaces, drills, perforators/gravers, scrapers; and ground stone tools such as manos, celts, abraders, anvil stones, and stone disks. While additional types of chipped and ground stone tools are present on Late Woodland sites, their presence is overshadowed by a wide array of bone tools (Egloff 1990). This apparent increase in the frequency of bone tools is likely a product of increased preservation in floodplain settings, although it may also suggest a general de-emphasis on stone tools.

An additional class of artifacts includes bone and shell ornaments and instruments. Bone ornaments include avian femur and wingtip beads, deer scapula hairpins, and pendants fashioned from various animal canines. Cut and polished cylinders were also formed from antler tines. And musical instruments constructed of bone include notched elk scapula and turkey bone flutes (Egloff 1990). Shell artifacts include: notched and unmodified fresh water mussel shells; beads, gorgets, and pendants fashioned from various parts of marine conch shells; and marginella and olivella shells which

were fashioned into beads or left unmodified (Egloff 1990).

Archaeological and ethnohistorical evidence indicate that extensive trade systems existed during the Late Woodland period. Marine shell, as well as copper, shark teeth, soapstone, slate, mica, mineral pigments and crystalls, and vegetable dyes were items exchanged prehistorically which often remain as tangible evidence of the complex social interrelationships which existed within and between regions of eastern North America (Holland n.d.: 169-230; Waselkov 1989).

Mortuary information from the western portion of Virginia also provides evidence for regional social integration, elaborate systems of mortuary ceremonialism, and the presence of social differentiation. In southwestern Virginia, the various burial methods and burial pit types, and the differential distribution of nonlocal trade items within burials suggest the presence of diverse and elaborate mortuary practices replete with evidence for social ranking (Egloff 1990). In central and northwestern Virginia, a series of earthen accreational burial mounds have been reported and interpreted as tangible reflections of a diverse and elaborate ceremonial system which integrated regional populations (Holland n.d.: 315-325, 334-342; MacCord 1986).

The majority of these mounds are located on floodplains and terraces adjacent to primary watercourses, with one hill top location being the exception (MacCord 1986: 18-19).

Bundle burials and cremations constitute the primary method of interments with articulated interments apparently rare (MacCord 1986: 28). The looting and uncontrolled excavation of most of these mounds may prohibit an indepth analysis and comparison of the various mounds. However, analysis of the limited amount of controlled excavation of these mounds indicates that the differential interment methods and the differential distribution of nonlocal artifacts are suggestive of varying symbolic expressions of social commonality and differentiation.

The Late Woodland period is followed by the Protohistoric period which signals the initial Euro-american expansion into western Virginia, and their subsequent interaction with, and extirpation of, native cultural systems. In western Virginia, this time period begins circa 1671, the date of the first written record of the exploration of western Virginia by Thomas Batts and Robert Fallam (Bushnell 1907). Although evidence (see Alvord and Bidgood 1912) suggests that others, perhaps fur traders, had entered into western Virginia prior to Batts and Fallam, no record of their actions exists.

Although a few Protohistoric period sites have been investigated in the region immediately south and southwest of Craig County (Buchanan 1986; Barber 1988; Klatka 1990), little is currently known of the processes of Euro-american expansion into western Virginia and the disruption of native lifeways.

However, the results of long term research of Protohistoric period sites in western North Carolina (Dickens, Ward, and Davis 1987) has provided a model of these processes which may be used in the study of the Protohistoric period in western Virginia.

Mortuary, trade, and settlement pattern evidence from western North Carolina suggest that initial interaction between Native Americans and Euro-american fur traders during the third quarter of the seventeenth century "did not result in immediate, massive epidemics and rapid depopulation" (Ward and Davis 1989: 4). However, from the late 1670s through 1700, native groups which engaged in subsequent intensive and sustained trade and interraction were devastated by high mortality rates brought about by epidemic diseases, while more isolated native groups, perhaps only engaged in indirect trade, were affected only minimally (Ward and Davis 1989: 5). This process continued until,

> "by 1740, when the first white settlers began venturing into the northern piedmont, they met no resistance from the native tribes. In fact, they met few natives. Over a period of less than 100 years after the first Virginia traders bartered their wares, the villages of the [native americans] lay vacant, surrounded by abandoned fields that were soon to be tilled by the newcomers." (Ward and Davis 1989: 7).

An Economic and Social History of Craig County

This section of the chapter provides a perspective on the social and economic history of Craig County and of the more general western Virginia region. This historic overview is abstracted from the following local and regional histories: Austin and Austin (1982?), Giles County Historical Society (1982), Henretta et. al (1985), Kagey (1988), Kegley (1938), and Morton (1916, 1923); and is articulated by a general economic model involving the changing character of rural ecomonic exchanges, and degree rural economic participation in regional and national market economies (see Kulifkoff 1989, for a review and critique of related models).

At the time of initial Euro-american settlement, present-day Craig County was part of Botetourt and Montgomery counties. Craig county was formed in 1851 from parts of Botetourt, Roanoke, Giles, and Monroe counties. Between 1853 and 1858 small parts of Montgomery, Monroe, Allegheny, and Giles counties were added to Craig (Hinden 1957; Thorndale and Dollarhide 1987).

Euro-american expansion westward from the Piedmont and Tidewater areas, and through the Shenandoah Valley into the present-day Craig County area began with an initial period of land surveying and speculation between 1742 and 1750 (Kegley 1938: 64-74). The encouragement of settlement expansion by

grants of large land areas led to a system of nonresidential proprietorship. While this system enabled many influential people to gain title to massive tracts of land, it did little to promote actual settlement (Kegley 1938: 53-57; Morton 1923:9-10). The earliest land grants to John Craig, James Patton, and others, were focused on the fertile lands adjacent to the area's primary watercourses, such as Craig, Potts, and Catawba creeks (Kegley 1938: 64-74). The subdivision and selling of these lands beginning in 1751 was likely a response to general fears of military action surrounding the impending French and Indian War and did little to promote additional settlement until after the war (Kegley 1938: 75; Henretta et al. 1987: 142-144). The Treaty of Paris in 1763 ushered in a long period of relentless land transactions, road building, and settlement in the western Virginia region (Kegley 1938: 439, 456-463; Austin and Austin 1982: 58-60; Morton 1916: 30, 1923: 13-14; Giles County Historical Society 1982: 40).

The rapid settlement of this area by farmers during the period 1760-1800 subsequently promoted regional development based on an agrarian economic system. This early settlement focused on the rich bottomlands of the major streams and their tributaries; from there settlement slowly spread into the upland areas. The relative isolation of the area facilitated the formation of local communities closely bound together by kinship and shared interests (Kegley 1938: 136). This

isolation also necessitated the initial development of a farm level self-sufficiency in foodstuffs, localized artisans, and the establishment of local market services to support the farms (Kegley 1938: 172; Austin and Austin 1982: 60).

Mercantile stores and trading posts introduced the regional market economy into the area. Initially centered on the main waterways such as the James, Roanoke and New rivers, associated community stores soon followed (Kegley 1938: 325; Austin and Austin 1982: 64). The licensing of local merchants and artisans by 1770 suggests the rapid growth and importance of these artisan and commercial services (Austin and Austin 1982: 65).

Although much of the early farm's output was consumed by the family, its labor force, and livestock, a secondary group of consumers consisted of residents of the local area. These residents operated artisan and mercantile services in the local communities. Bonds between these local communities and the surrounding farms were based primarily on ties of kinship, religion, and language. Furthermore, the structure of these bonds between regional farms and communities were originally founded upon the lineal family form in which a set of reciprocal rights and obligations operated to link family members and related families (Henretta 1978). Therefore, while the market economy tended to regulate the overall terms of trade between farmers, artisans, and merchants, in daily life this price

system was ultimately subordinated by the lineal family structure to informal transactions of barter based on exchange value and delayed reciprocity (Henretta 1978:16; Merrill 1976; Austin and Austin 1982: 62). Thus, the family represented both the principal social institution and minimal economic unit influencing the early history of the Craig County region.

The impact of the Revolutionary War on the western Virginia region was indirect in nature. While direct military action did not occur in the county (Kagey 1988: 91-93), the war did affect the regional economy. The demand for flour, hemp, and meat by the army stimulated an accelerated focus on wheat, hemp, and flax cultivation, and livestock production (Mitchell 1973: 121-123, 125, 128). And unpredictable fluctuations in European market demands during the war reinforced the diversification of agricultural practices, and the development of industrial pursuits to support the war effort.

The production of hemp, flax, corn, wheat, and livestock represented a relatively small, but important, proportion of the total production of the early farms, and further constituted the basis of the region's early market economy (Austin and Austin 1982: 62-63). Consequently, farmers enacted formal transactions and developed strong regional ties with external markets in Richmond and Philadelphia.

By the early 1800s the economy of the Ridge and Valley area was based on mixed-farming and livestock production, with a community level of self-sufficiency in food production and manufacturing. To alleviate the risks of fluctuating external markets, farmers diversified and marketed wheat, corn, and animal products, and to a lesser extent hemp, flax, and tobacco. This agricultural system also included the production of other grasses, grains, vegetables, and orchard crops (Austin and Austin 1982: 62-63). This diversity of production enabled the small farmers to meet the basic subsistence needs of the family and farm before selling any remaining surplus to the local, non-agrarian community (Cabell n.d.).

The mixed-farming economy required the development of numerous support services. Wagon and bateaux construction were necessary to transport ores, hogsheads, and flour to the external market in Richmond. Flour manufacturing mills, woolen mills, and cooper services were required for the processing and packaging of farm products for transport to Richmond. Also the production of agricultural products for subsistence, and for local and external markets, required an expansion of the local service economy. Established roads of the late eighteenth and early nineteenth centuries were intersected by new secondary roads which served to connect the growing number of farmsteads with the economic centers.

An adequate road system also facilitated the development of grist milling as a large industry in the nineteenth century. Scattered throughout the region, most grist mills were small, water-powered operations which processed corn, wheat, and oats for the local farmers. Some grist mills also operated saws for cutting lumber, carding machines for processing wool, and presses for oil production. In addition to grist mills, larger manufacturing mills developed for large scale flour production. The millers operating these grist and manufacturing mills collected a "toll", or payment, of grain which was sold in the local markets.

Requirements of the diversified, mixed-farming economy also stimulated increases in the number of other support services. A listing of the frequencies and types of support services in a sample of the larger villages within the immediate region of present-day Craig County is provided in Table 3.1.

The distance between the western Virginia region and the external agricultural markets, unstable wheat markets during and after the Revolutionary War, and the increased stimulus for livestock and meat production during the war, reinforced the diversified agricultural practices, and reaffirmed the importance of the local economy (Mitchell 1973). Thus, unpredictable European market demands and shifts in cultural practices precipitated by the Revolutionary War, decreased any

Table 3.1 Types and Frequencies of Services and Occupations in the Craig County Area in 1835 (Martin 1835: 308-309, 328-330).

Service/Occupation	New Castle	Fincastle	Salem	Covington
Tavern	1	3	3	-
School	1	2	3	2
Church	1	3	3	2
Circuit Court	-	P	-	-
Physician	-	3	-	2
Attorney	-	9	-	3
Boat Builder	1	-	-	-
Cabinet Maker	2	5	1	+
Carpenter	1	-	+	+
Chair Maker	-	1	-	+
Clock/Watch Maker	-	1	1	-
Gunsmith	-	1	-	+

Table 3.1 Types and Frequencies of Services and Occupations in the Craig County Area in 1835. (Martin 1835: 308-309,328-330) (Continued).

Service/Occupation	New Castle	Fincastle	Salem	Covington
Hatter	-	2	1	+
Saddler	1	4	2	+
Tailor	1	2	2	+
Tin/Copper Smith	-	1	-	+
Wagon Maker	-	4	-	+
Wheelwright	-	2	-	-
Confectionary	-	1	-	-
Printing Shop	-	1	-	-
Tanyard	1	2	1	+
Boot/Shoe Factory	2	4	1	+
Blacksmith Shop	1	4	5	+
Iron Foundry	1	-	-	-

Table 3.1 Types and Frequencies of Services and Occupations in the Craig County Area in 1835 (Martin 1835: 308-309, 328-330) (Continued).

Service/Occupation	New Castle	Fincastle	Salem	Covington
Manufacturing Mill	1	1	1	_
Powder Mill	1	-	-	-
Oil Mill	-	1	-	-
Wool Carding Machine	1	1	2	-
Saw/Grist Mill	-	-	4	-
Wheat Fan Manufactory	-	-	1	-

- = unspecified

P = present

+ = present, unspecified frequency

focus of production for external markets and continued to foster a reliance on production for the local economy.

By the early nineteenth century, this process led to the emergence of a "social economy, a dense network of trade and exchange of farm products, labor, services and manufactured goods within the local economy" (Schlotterbeck 1980: 53-54). The growth of a non-agrarian population within the local community increased access to goods and services, and provided a stable, local market for surplus crops. The social economy was characterized as a community level of self-sufficiency which operated through ties of kinship and the lineal family which had increased in complexity and extent during the early nineteenth century. Small villages developed through the clustering of related families which offered artisan and mercantile services. These villages became the primary unit of the local community. The social economy developed in part as a response to poor external market conditions, but more importantly, as an embodiment of the reaffirmation of the tradition values and relationships inherent in the lineal family structure.

By the early nineteenth century the social economy of western Virginia was fully developed, and united the agrarian population with the non-agrarian population. The day-to-day exchanges enacted by these people bound them together through an elaborate system of mutual dependency. Yet because many of

these people were related through cohesive lineal ties, or were friends or fellow church-members, these ties transcended economic relationships and were encompassed by social relationships (Henretta et. al 1987: 90-93, 105-108).

During the late eighteenth and nineteenth centuries iron ore processing acted to strengthen regional ties with the external markets (Bruce 1930). Iron furnaces in present-day Allegheny and Botetourt counties represent the incipient iron industry of the region, but little is known of their origin or production (Bruce 1930: 454-457). But by the nineteenth century, the iron industry of the Oriskany district, located around the James River headwaters, was an important center of manufacture (Watson 1907: 403). At least sixteen iron furnaces were operating within the region during the early to mid nineteenth century (Bruce 1930: 454-457). This includes one "charcoal furnace", or iron furnace for local production, in the New Castle area (Martin 1835: 329; Watson 1907: 445; Bruce 1930: 454). Although this furnace operated from 1830 to 1847 (Bruce 1930:454), another furnace in the New Castle area was in production by at least 1860 (U.S. Census 1860, Schedule 5; see also Barfield 1990: 3).

Although the iron industry acted to strengthen relationships with external markets, it also strengthened the local economy. While the bulk of production was shipped by river to the Tredegar Iron Works in Richmond, metal and cast

"mould boards", or plow plates, were produced for the local markets (Bruce 1930: 454-457). Support services for the iron industry included mining operations to extract ores, collier operations to provide charcoal, and batteaux construction for shipping pig iron to external markets. Although the iron industry connected the region to the external markets, a lack of efficient transportation systems hindered the large scale development of the iron industry until the improved railway systems of the late nineteenth century were in operation. Although the iron industry acted to connect the region to the external market systems, its limited size acted only to complement the region's dominant mixed-farming economy.

The pattern of settlement produced by the economic development of the nineteenth century was essentially decentralized. A few clusters of service oriented establishments were located in small villages scattered throughout Craig County and neighboring counties, and were connected by a minimum number of common roads. Notable exceptions to this pattern of dispersed, unspecialized settlements include New Castle and Salem, where numerous specialized mercantile establishments were concentrated, and Fincastle and Covington, where mercantile and other services were centered as extensions of their roles as seats of county governments (See Table 3.1).

The economic fluctuations which occurred in Virginia between the War of 1812 and the 1850s acted to strengthen the diversified system of production in western Virginia. The stable internal markets of the region enabled local farm producers to shift the intensity of cash crop production in response to changing external market conditions. During this period the continued development of the iron ore industry also went unchecked and acted to further strengthen the regional economy through its connections with the external markets.

Although the impact of the Civil War on the economy of Craig County was fairly great, direct military conflict did not occur in the county. Craig County's role in the war was as a supplier of men and raw materials. The county supplied the Confederate Army with troops, food, wool cloth, and was actively involved in the regional iron ore industry (Bruce 1930: 371). Perhaps due to its location between Union troops stationed in West Virginia and the Confederate rail lines to the south, troop movement through the county occurred during at least two occasions. In December of 1863, the Union Army's General W. W. Averell and his troops raided the Virginia and Tennessee Railroad depot and lines in Salem. Averell's troops moved through Craig County to and from the raid (Scott 1890: 919-934; Kagey 1988: 199-200). In June of 1864, the Union Army's General David Hunter and his troops travelled through Craig County while in retreat from Lynchburg and following the

Battle of Hanging Rock in northern Roanoke County (Kagey 1988: 200-207). Damages sustained by the county and its residents during these movements of the Union Army were limited to loses of agricultural produce and livestock.

While the regional effects of the Civil War on the economic positions of blacks and women were negligible, and the distribution of wealth went unaffected by the war (Miller 1985: 14), "the ramifications and effects of this war had implications for years to come in the lives of those recovering..." (Kagey 1988:198). The gradual dissolution of the community self-sufficiency which characterized much of rural Virginia after the Civil War, occurred much more slowly in western Virginia. This was primarily due to the lack of adequate road and rail transportation lines in rural areas which slowed the integration of the local economy into the larger regional and national economy. However, the building of improved road systems, and stable produce and livestock markets, throughout the late nineteenth and early twentieth centuries, benefitted a focus on commercial agricultural production.

The new road systems also introduced retail establishments into the area. These retail establishments successfully competed with locally manufactured goods, and caused a decline in local artisan services. Informal economic exchanges of goods, services, and labor were replaced by formal transac-

tions based on cash, and the strength of the lineal family ties was diminished. Finally, with self-sufficiency on the decline, many of the larger farms became subdivided, and subsistence farmers became increasingly infrequent.

The regional iron industry experienced renewed growth during the late nineteenth and early twentieth centuries as the completion of railways provided an efficient means of transporting products to the external market system. New rail lines also connected new regions with ore deposits to the industrial centers. The opening Craig Creek Branch of the Chesapeake and Ohio Railway in 1895 led to the establishment of the Fenwick Mines in 1899, and the opening of the Potts Creek Branch of the same railway in 1906 also facilitated the establishment of the Jordan Mines (Watson 1907: 403; Lesure 1957: 81; Barfield 1990). But these industrial pursuits were relatively short lived due to increased competition from Great Lakes ores, competition from other furnaces built with new advances in iron furnace technology, and competition from the more efficient steel railways (Lesure 1957: 81; Raitz and Ulack 1984:107-108).

The shifting economy of the Craig County region was lent some stability by the development of a commercial wood industry, and the productive iron ore industry. By the twentieth century, the regional shift to commercial production constituted an irreversible economic and social change, the

results of which constitute the modern day economic structure of the county.

CHAPTER FOUR

SURVEY DESIGN AND FIELD METHODOLOGY

Introduction

The goals of the Craig County reconnaissance survey were specific is some regards and general in others. At the most general level, the survey attempted to gather systematic archaeological data which would contribute to the long term goal of systematically investigating the number and variety of prehistoric and historic sites within the primary service area of the Department of Historic Resources's Roanoke Regional Preservation Office, and to assess the size, patterning, and integrity of these sites in the regional archaeological record. These goals are nested within the broader research objectives of providing reliable predictive data which will facilitate the refinement of regional cultural resource management and preservation plans, and generating an information base which will allow a greater understanding of regional prehistory and history. A more specific objective of the survey was to add to the existing inventory of archaeological sites within Craig County in order to bring the county to the reconnaissance level of survey, and thereby contribute towards the Department of Historic Resources's regional preservation plan for southwestern Virginia. This

chapter describes the rationale, methodology and field techniques used in the Craig County reconnaissance survey.

Rationale for the Survey Design

A review of the Virginia Department of Historic Resources' archaeological site inventory forms for Craig County indicate that previous research in the county has been based largely on informal pedestrian survey structured by surface visibility, and supplemented by subsurface testing conducted in the context of a limited number of cultural resource management studies. The reported archaeological surveys in the county have been conducted by the Virginia Research Center for Archaeology (Clark 1976; Adams and Woodhouse 1979), Washington and Lee University (McDaniel et al. 1981), and the Jefferson National Forest (Bass 1981; Foss and Tourtellotte 1982; Tourtellotte and Egghart 1983a, 1983b, n.d.; Scruggs 1983). This research has resulted in the documentation of 83 archaeological sites, including 73 prehistoric sites and 10 historic sites. Table 5.1 and Appendix 1 provide a description of the archaeological sites recorded through this research.

While this research allows an assessment of the nature of the county's archaeological resources, there is still a need for systematic survey data which will enable the reliable

prediction of site density and distribution, provide a means of recognizing and assessing any biases in the existing site inventory records, and facilitate the integration of cultural resource management studies into the broader context of regional prehistory and history. The Craig County reconnaissance survey was initially structured in response to these research and management issues.

As initially formulated, the Craig County reconnaissance survey was designed around probability and judgmental sampling, systematic surface collection and subsurface testing, and informant interviewing. The probibility sampling phase of the project was to be conducted throughout the county by the random selection of sampling units from each of six areas of the county stratified on the basis of rank size drainage. This phase of the survey was supplemented by a judgmental phase in which portions of the Route 311 development corridor, and portions of the previously unsurveyed Sinking Creek Valley, were selected for surface survey. The project was conceived as a cooperative effort between the Department of Historic Resources' Roanoke Regional Preservation Office and the Jefferson National Forest.

The first season of survey fieldwork initiated the judgmental sampling phase of the survey design, and was conducted by the Roanoke Regional Preservation Office in portions of the Sinking Creek Valley and the Route 311

development corridor. Both of these areas were not scheduled to be sampled through the probability sampling phase of the survey design. Following the first season of field work, unpredicted circumstances prohibited the Jefferson National Forest from participating in the survey project. Therefore, the survey design was restructured to facilitate a one person crew with the assistance of one seasonal crew member.

Since the majority of Craig County's mountainous area is federally owned, the restructuring of the survey design necessarily resulted in a concentration of fieldwork in the county's alluvial valleys. The most efficient means of conducting a reconnaissance survey with a one or two person crew is through a systematic pedestrian survey. Therefore, the majority of the Craig County reconnaissance survey was undertaken through a pedestrian survey of areas with good surface visibility. An effort was made to provide detailed documentation of observed archaeological sites and standing structures. All cultural resources were systematically inspected with controlled surface collection techniques, and further documented with scaled drawings and photographs. During the judgmental phase of the reconnaissance survey, approximately 136 arces were surveyed, and 80 archaeolgical sites, and six standing structures were documented. The archaeological sites are dispersed throughout the county and include 40 prehistoric sites, 35 historic sites, and five

sites with both prehistoric and historic components. Table 5.2 and Appendix 2 provide descriptive information pertaining to all of the archaeological sites and standing structures recorded during the Craig County reconnaissance survey.

A portion of the Craig County survey was also designed around probability sampling and systematic subsurface testing. Although the small size of the survey crew limited the size of this portion of the survey project, it was undertaken as a means of reaching the long term goal of generating reliable predictive data regarding the prehistoric and historic cultural resources of southwestern Virginia. During this portion of the suvey, a total of six transects were completed. Four randomly placed transects covered a total of 12.58 acres and resulted in the location of two prehistoric sites and two sites with both prehistoric and historic components. Two puposively placed transects covered a total of 5.13 acres and resulted in the discovery of three prehistoric sites. Table 5.5 lists the the acreage covered by, and the number of sites discovered on, each completed transect. Figures 4.1 - 4.6 illustrate the location of each transect.

Field Techniques

The importance of subsurface testing in forested environments has been discussed by a number of archaeologists

(e.g., Krakker et al. 1983; Lynch 1980; McManamon, 1984; Woodall 1981). Critical examinations of archaeological site survey techniques have illustrated the utility of shovel test pits as the most efficient means of subsurface testing in regional surveys (Lightfoot 1986; McManamon 1981). The evaluation of shovel test unit size has indicated that while small shovel-test units do appear to underestimate intrasite artifact density, they nonetheless provide an adequate and efficient means of locating sites (Jehle and Carr 1983: 44). Additionally, the screening of shovel test unit fill significantly increases artifact recovery rates, and thereby increases the likelihood of locating a site and adequately delineating its boundaries (Jehle and Carr 1983: 50). For these reasons, shovel test pits and screening of test pit fill were standard techniques of the Craig County reconnaissance survey.

All shovel test pits were systematically placed at twenty meter intervals along transects. The interval of twenty meters assumes that all archaeological sites of twenty meters, or greater, in diameter were observed during subsurface investigations. All shovel test pits were excavated to a depth of at least 30 centimeters below ground surface, or until culturally sterile soils were reached. In floodplain and terrace settings, the shovel test pits were excavated to a depth of at least 40 centimeters below ground surface and

proceeded until culturally sterile soils were reached. The diameter of all shovel test pits was no less than 30 centimeters. All excavated soil was screened through 1/4 inch mesh hardware cloth, and subsurface soil profiles were measured and mapped. Subsurface testing was not conducted on steep slopes, or in agricultural fields with high surface visibility. However, the surface of these areas underwent visual examination.

When artifacts were recovered from a shovel test pit, additional shovel test pits were placed at ten meter intervals in alignment with, and perpendicular to, the transect. This procedure provided a means of estimating site size.

When the surface visibility of agricultural fields was high, the ground surface was inspected with systematically placed surface collection transects. The surface collection transects were placed in a parallel fashion with a consistent interval between transects. The interval between surface collection transects varied from site to site, depending on size of the agricultural field, and time constraints. However, in all cases, the interval width was in increments of two and one-half, five, ten, or twenty meters. All artifacts and landscape features were marked with surveyors pin-flags, and all artifacts were provenienced with a hand held compass and collected. Site size was then estimated by mapping the areal extent of the surface remains. In the case of extremely

large sites, a grid system was superimposed over the site and a sample of grid cells were intensively surface collected.

The exteriors of all historic standing structures were documented with scaled drawings and photographs, and architectural features were noted. When accessible, the interiors were also documented with scaled drawings and the photographs. The areas immediately surrounding the structures were also examined for surficial evidence. Any additional structural and artifactual evidence was mapped and noted.

Non-Random Survey Methods and Informant Interviewing

The majority of the survey fieldwork was structured around the systematic investigation of sites exposed on the ground surface. These sites were located primarily through the investigation of agricultural fields, historic maps, travellers accounts, and Works Progress Administration Historic records.

A considerable portion of the fieldwork involved interviewing landowners and other county residents regarding the location of prehistoric and historic sites. Within the limits of time constraints as many of these areas as possible were field inspected.

Prehistoric site locations provided by landowners and residents were field verified before recordation. When

surface visibility was good, field investigations proceeded with the same techniques outlined in the preceding section of this chapter. However, when surface visibility hindered the field verification, temporal information was derived from private artifact collections. All private artifact collections were photographed as standard site documentation procedure.

Probable areas of historic site location were also field inspected for site verification. Standing structures, or structural remains, were documented with the procedures outlined in the field techniques section of this chapter. Preliminary background information regarding site function and temporal affiliation was derived through informant interviews, historic maps, and historic business directories.

Purposive testing of some areas with poor surface visibility was also undertaken. Testing of these areas was accomplished by purposively placed transects with shovel test units systematically placed at twenty meter intervals. Field procedures were consistent with those discussed in the field techniques section of this chapter.

Modifications of the field procedures were sometimes necessary due to particular field situations, cultivation schedules, and/or property owner desires. Any modifications of field procedures are mentioned in the discussion of field techniques on individual site survey forms.

Random Survey Methodology

Transects were chosen as the type of sampling unit for the random component of the survey. The shape of transects has been found to provide the optimal sampling unit for a variety of reasons. First, by providing a smaller variance between observed and expected results, transects have been demonstrated to be a more effective means of discovering the greatest proportion of sites relative to areal coverage, especially in stratified designs (S. Plog 1976: 149; S. Plog et al. 1978: 401; Custer 1979, 1983). Second, the large perimeters of transects also make it possible to cross-cut the range of environmental variability within a single sampling unit, especially when the sampling unit is placed perpendicular to a drainage (Custer 1983: 82; Judge et al. 1975:88). In this manner, transects are more effective than quadrants of the same size for obtaining adequate environmental coverage. Third, transects are easier to demarcate and follow in the field (Judge et al. 1975: 88; Reid 1975: 33).

Simulations have shown that smaller and more numerous transects provide more precise estimations of site variability and density than larger and less numerous sampling units (S. Plog 1976: 151; S. Plog et al. 1978: 401). As a compromise between the desire for optimal precision and the need to

minimize field and travel time, the size of the transects was limited to the areas which could be surveyed by a one person crew in four days. Therefore, transects were initially designed to measure 20 meters by 800 meters for a total area of 16,000 square meters. At times, modification of the transect length was necessary due to private property access and crop schedules.

Craig Creek is the largest rank size drainage in Craig County. Historic research has indicated that Craig Creek was the initial corridor for Euro-american settlement of the county (Kegley 1938), and previous archaeological research has also indicated that lands adjacent to large size drainages were intensively used during prehistory (e.g., Geier, Barber, and Tolley 1983). For these reasons the land areas adjacent to Craig and Johns creeks, the largest rank size drainages in the county, were chosen as the target population for random sampling during the survey.

The following procedure was used in selecting a simple random sample of the target population for field survey. The areas bordering Craig and Johns creeks were divided into segments of one kilometer in length. A random numbers table was used to randomly select a set of one kilometer long segments from each creek. To prevent unintended spatial clustering of these segments, the length of each creek was initially divided into quarters and an equal number of

segments was chosen from each quarter. Each selected segment was further subdivided into ten increments measuring 100 meters in length. The exact starting point of a transect was found by further selecting a random number between one and ten. The beginning of each transect was placed on the land surface at a distance of ten meters from the edge of the creek at the randomly selected point. All transects were placed perpendicular to the creek. This enabled each transect to cross-cut the topographic variation of floodplains and terraces.

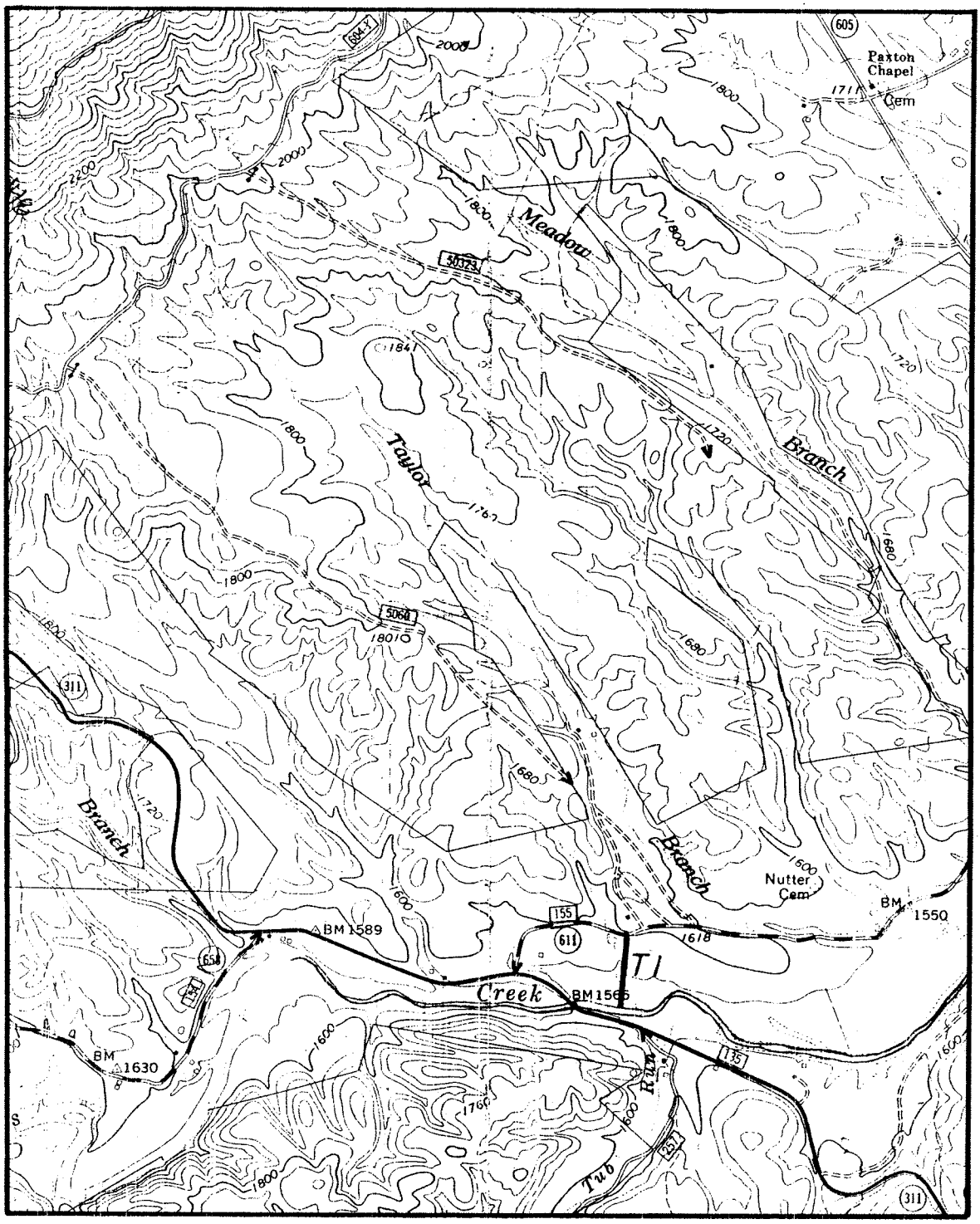

Figure 4.1 Location of Transect 1.

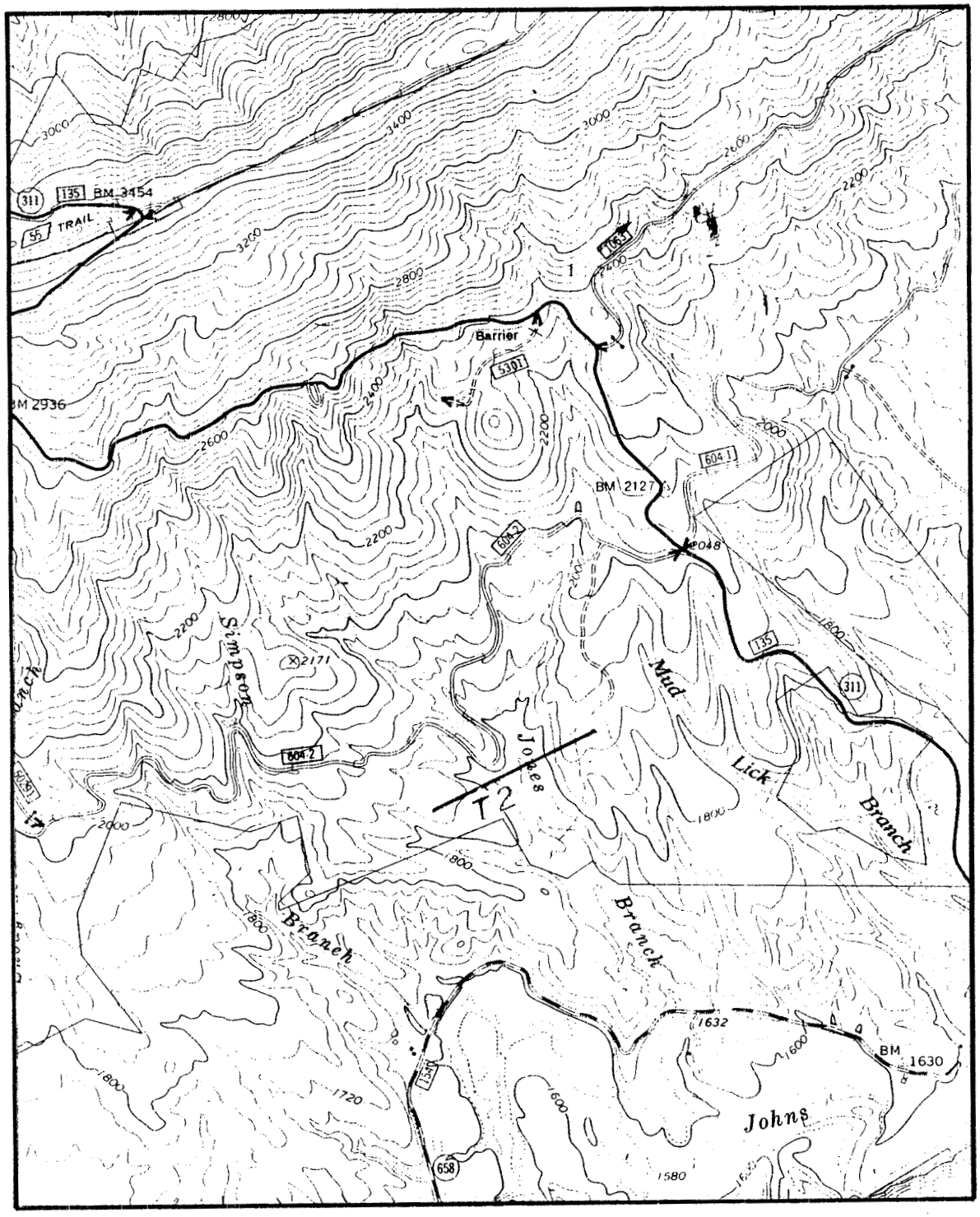

Figure 4.2 Location of Transect 2.

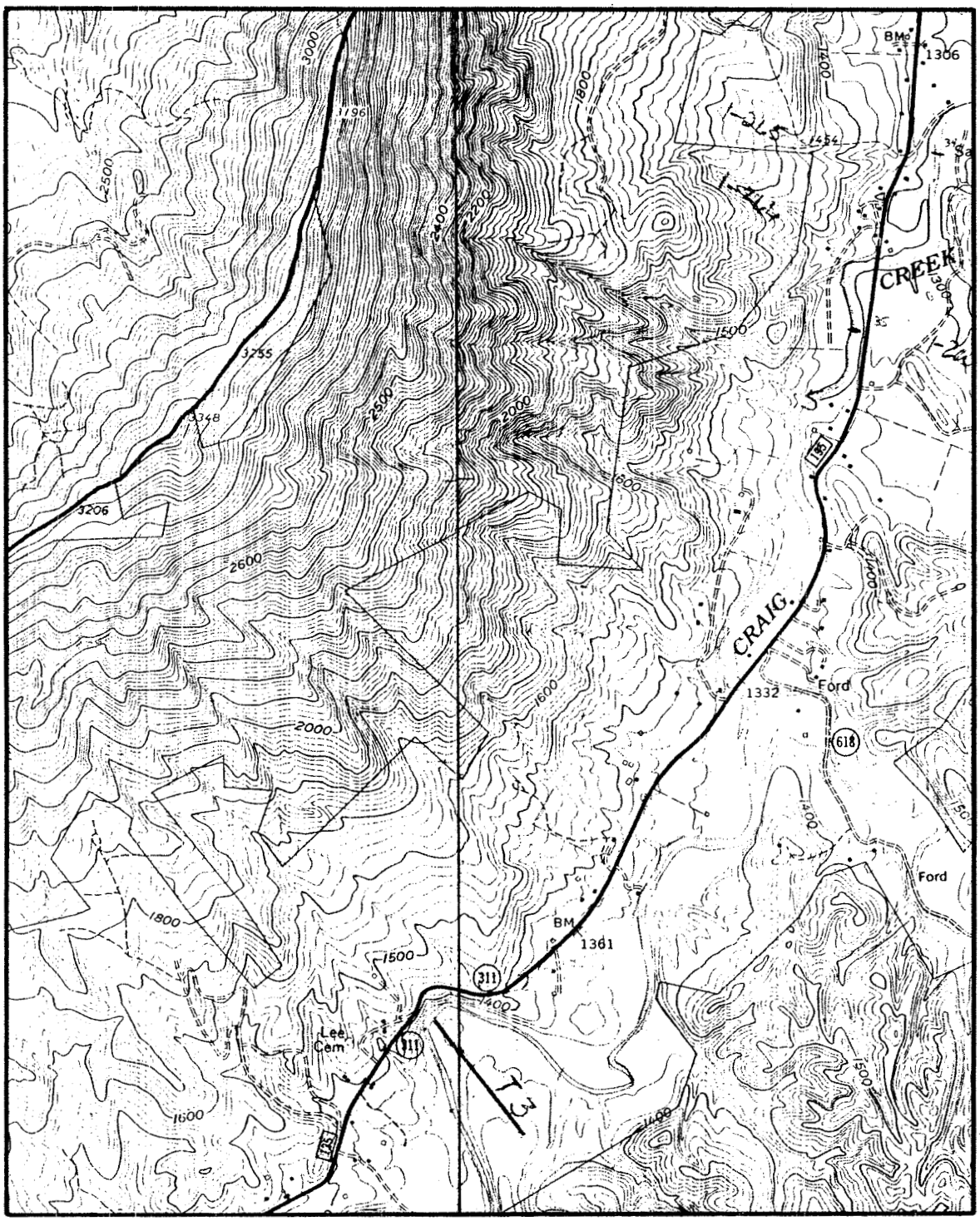

Figure 4.3 Location of Transect 3.

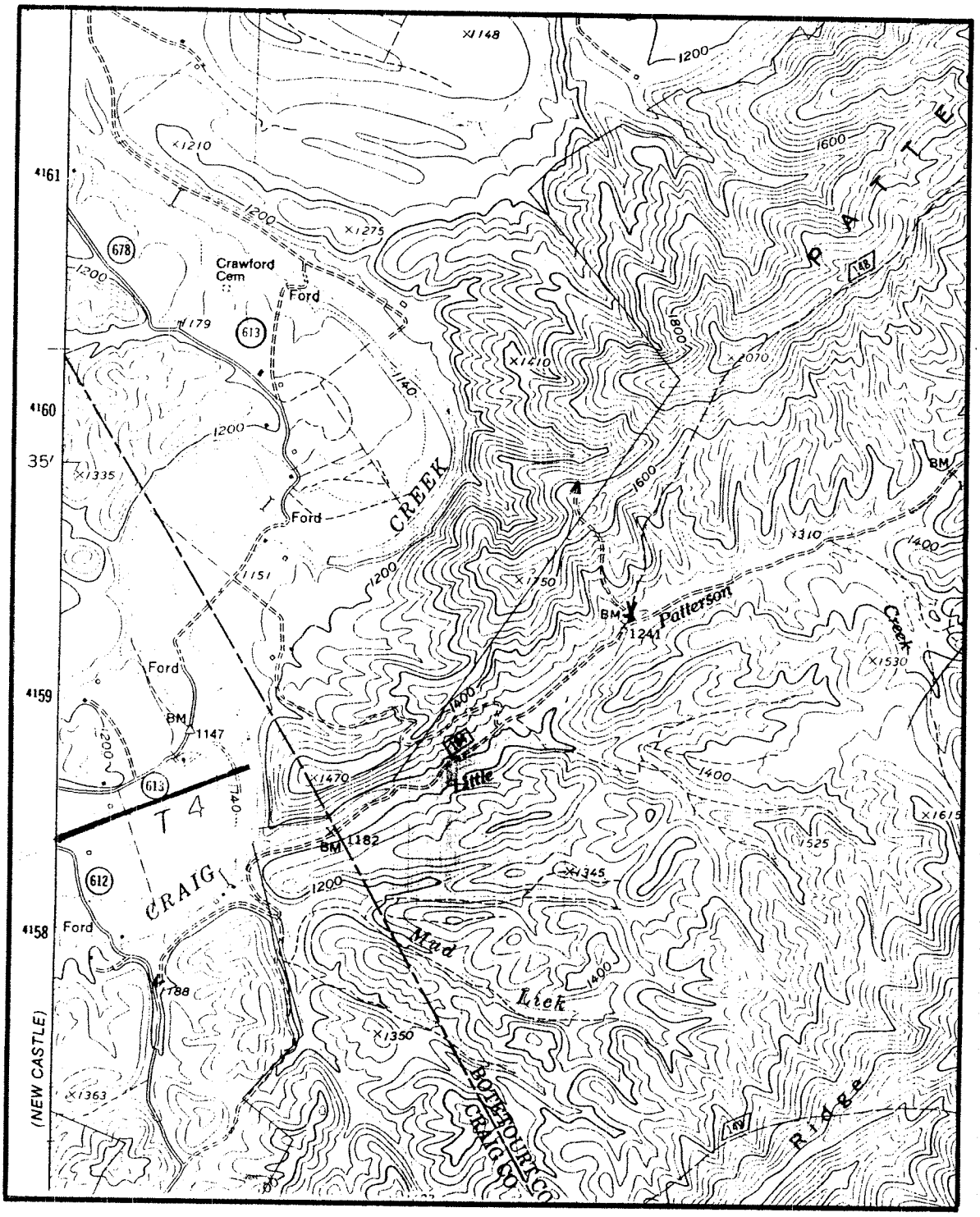

Figure 4.4 Location of Transect 4.

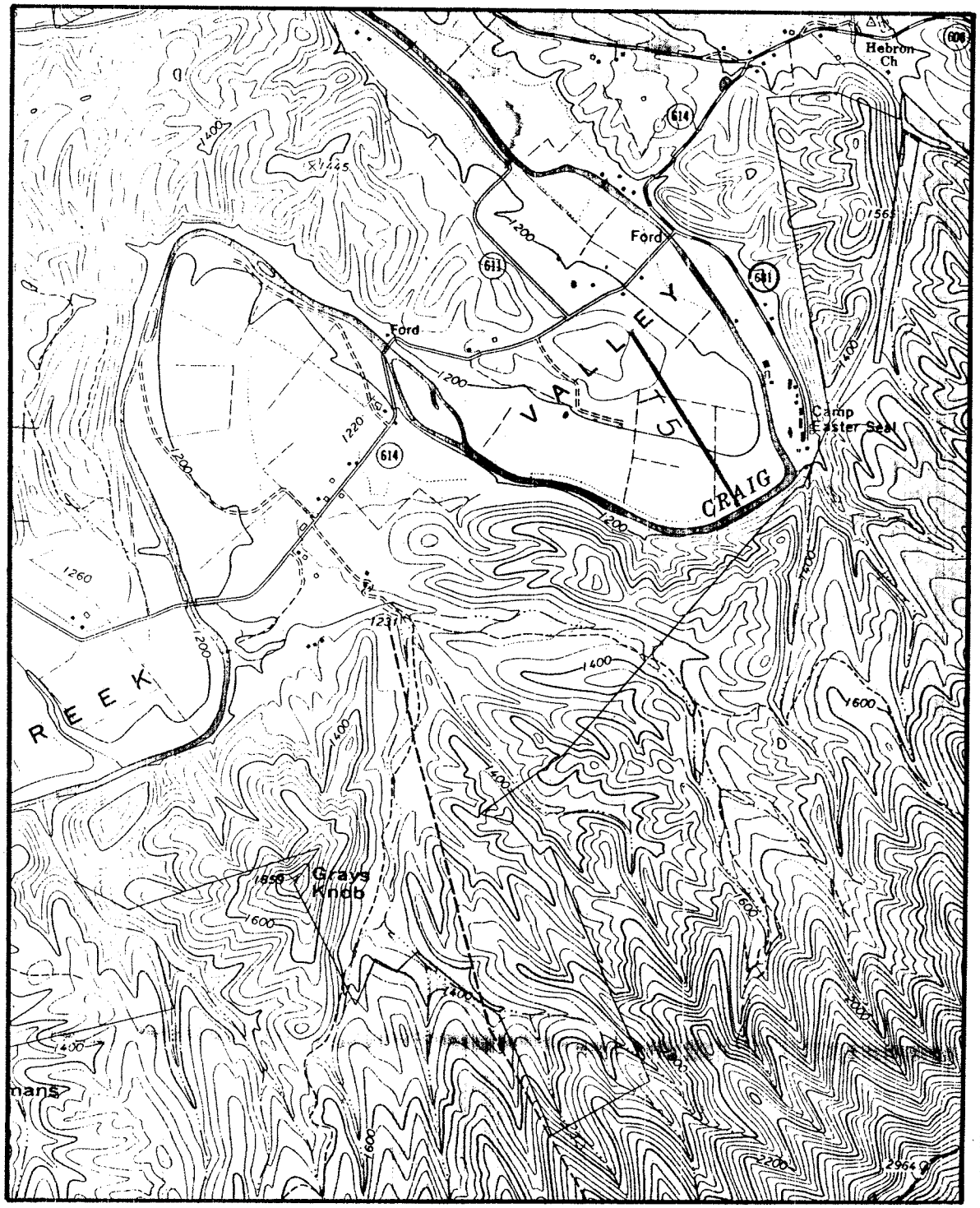

Figure 4.5 Location of Transect 5.

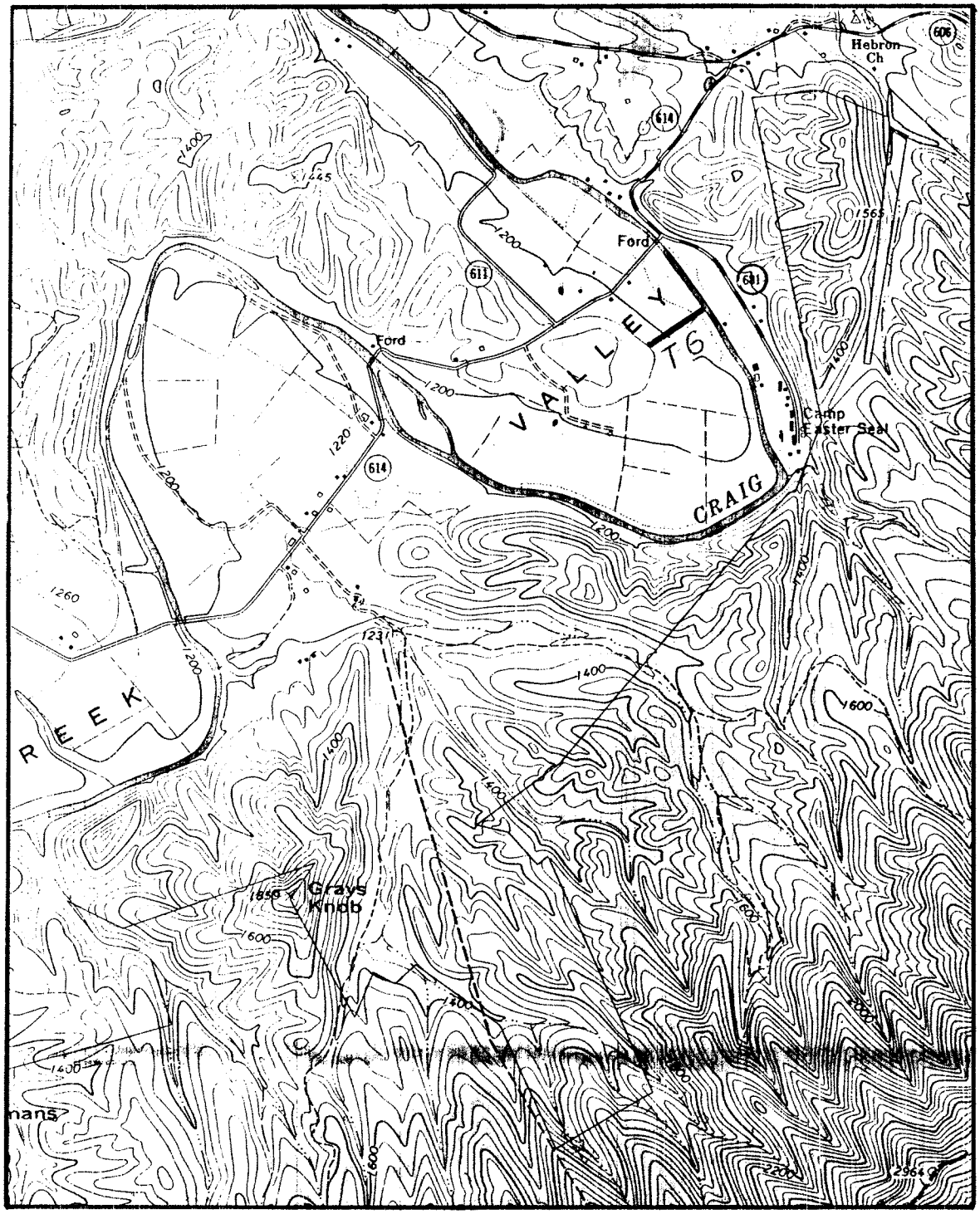

Figure 4.6 Location of Transect 6.

CHAPTER FIVE

ANALYSIS OF THE SURVEY DATA

Introduction

This chapter presents a synthesis and analysis of locational information which characterizes the archaeological sites recorded in Craig County. The locational information is derived from all of the sites recorded in the Craig County archaeological site inventory file at the Virginia Department of Historic Resources, and includes the sites recorded prior to, and during, the Craig County reconnaissance survey. Appendix 1 presents the locational information for the archaeological sites recorded prior to the reconnaissance survey, and Appendix 2 presents the locational information for the archaeological sites and standing structures recorded during the reconnaissance survey. The locational information will be used to discuss selected environmental variables which characterize archaeological site locations in the study area. Additionally, a discussion of the random survey data will be presented and analyzed as a means of estimating site densities in the county. The ultimate goal of these discussions is to suggest areas which appear to have a high potential for archaeological site occurrence, and to suggest future research

and planning needs in Craig County.

As mentioned previously, a portion of the Craig County reconnaissance survey was designed around probability sampling and systematic subsurface testing. The principal goal of this long term research is the establishment of an accurate and reliable predictive model of prehistoric and historic settlement which may be used for managing the regional archaeological resources, and as an aiding for the development of regional research designs for the study of history and prehistory.

In the present study, a predictive model is defined as a set of inter-related hypotheses regarding the location of archaeological sites in relation to environmental variables. Archaeologists generally predict the location of archaeological sites on the basis of the combined influences of environmental and cultural factors. However, in most cases precedence is given to the influence of environmental factors. The reason for this emphasis on environmental factors is because these factors are more easily approached in, and derived from, the archaeological record and its geographical context than are cultural factors. Interpreting the archaeological record through analysis of cultural factors usually requires intensive site specific and regional research. Such research cannot be carried out in the initial stages of regional analysis. Rather, initial research is most

fruitful when focused on the analysis of environmental variables. As additional information is collected through ensuing and more intensive stages of research, the environmentally-based models of the archaeological record tend to provide less interpretive power than more complex models which provide an increased emphasis on cultural factors. The cumulative result is the refinement of models which are articulated by both environmental and cultural factors to interpret the processes and contexts which ordered all variability in the archaeological record.

It is now generally recognized that the development of powerful interpretive models occur through multi-stage, long-term research conducted over a broad region. During the initial stages of research, such as the present study of Craig County, the primary concern is understanding where archaeological sites are, and are not, located on the landscape. Such information facilitates the development of cultural resource preservation planning, and provides a basis for the development and refinement of predictive models during subsequent stages of research. It is during the later stages of research when a more clear interpretation of the archaeological record is gained through extensive and site specific investigations which address broader issues such as chronology and social evolution.

As a means of providing information to aid the

development of cultural resource preservation plans and future research needs, the Craig County reconnaissance survey consisted of a review and evaluation of previous research in the county, and the implementation of a systematic field survey. The systematic field survey included controlled sampling techniques and subsurface testing methods as a means of investigating the internal structure and size of discovered sites. Additionally, the use of a random sampling survey allowed a reliable means of estimating site density and distribution, and provided a means of assessing any biases in the existing site inventory files.

The traditional, informal "pedestrian" survey methods do provide an efficient means of recording a large number of sites during a short period of time. Traditional survey methods are also well suited for locating the atypical sites of a locale, and recording the functional range of site types in an area. However, these technique are most often biased to certain landforms or land areas, such as floodplains and agricultural lands. Systematic survey techniques which employ randomly placed sampling units constitute an unbiased survey methodology which provides a means of evaluating the relative frequencies and densities of the range of site types within a region. When merged together into a unified survey design, these two survey methods provide the best means of recording and evaluating the nature of a region's distribution

of prehistoric and historic archaeological resources, identifying the information gaps that may exist in the current records, and establishing a set of priorities to guide cultural resource preservation planning and future research.

Key issues in this study include an assessment of the frequency, and distribution of the range of site types in the county, and an assessment of the information gaps in our current knowledge of the resources in the county. Such information is crucial to the evaluation of site significance and context, and is necessary for the development of relevant criteria to guide land development and cultural resource preservation planning, as well as the development of research issues which may guide future research.

Previous research in Craig County is very limited in nature. No archaeological sites have been excavated within the county. Archeological sites recorded in the county are the result of the Archaeological Society of Virginia site survey program, and seven reported cultural resource management surveys as noted in Chapter Four. The cumulative result of these surveys is the recordation of 83 historic and prehistoric archaeological sites. Table 5.1 provides initial interpretations of the dates and functions of these archaeological sites, and Appendix 1 provides descriptive information pertaining to the locational parameters of the sites.

The results of the Craig County reconnaissance survey include the recording of 87 prehistoric and historic archaeological sites, and 8 historic standing structures. The archaeological sites consist of 45 prehistoric sites, 35 historic sites, and seven sites with both prehistoric and historic components. Table 5.2 provides initial interpretations of the dates and functions of these sites, and Appendix 2 provides descriptive information pertaining to the locational parameters of the archaeological sites and standing structures. Additionally, Table 5.3 provides a statistical summary of selected environmental variables which characterize all of the archaeological sites recorded previous to, and during, the Craig County reconnaissance survey.

The following sections of this chapter provide an analysis of site locations in terms of environmental variables. This analysis includes all of the archaeological sites recorded to this date, except for historic period cemeteries. Cemeteries are not included in this analysis since these functionally specific sites are placed in particular areas, usually on prominent landforms adjacent to domestic structures.

Table 5.1. Temporal Affiliation and Function of Archaeological Sites Recorded Prior to the Craig County Reconnaissance Survey.

Site Number	Temporal Affiliation	Function
44CG1	Prehistoric	Camp/Indeterminate
44CG2	Prehistoric	Camp/Indeterminate
44CG3	Prehistoric	Camp/Indeterminate
44CG4	Prehistoric	Camp/Indeterminate
44CG5	Prehistoric	Camp/Indeterminate
44CG6	Prehistoric	Camp/Indeterminate
44CG7	E,L Archaic	Camp/Indeterminate
44CG8	Prehistoric	Camp/Indeterminate
44CG9	E,L Archaic	Camp/Indeterminate
44CG10	E,L Archaic, L Woodland	Camp/Indeterminate
44CG11	M-L Archaic	Camp/Indeterminate
44CG12	Prehistoric	Camp/Indeterminate
44CG13	Prehistoric	Camp/Indeterminate
44CG14	Prehistoric	Camp/Indeterminate
44CG15	Prehistoric	Camp/Indeterminate
44CG16	M-L Woodland	Hamlet/Village
44CG17	M-L Woodland	Hamlet/Village
44CG18	L Archaic	Camp/Indeterminate
44CG19	E,L Archaic	Camp/Indeterminate
44CG20	L Archaic	Camp/Indeterminate
44CG21	Prehistoric	Camp/Indeterminate
44CG22	Prehistoric	Camp/Indeterminate
44CG23	L Archaic	Camp/Indeterminate
44CG24	L Archaic	Camp/Indeterminate
44CG25	Prehistoric	Camp/Indeterminate
44CG26	Prehistoric	Camp/Indeterminate
44CG27	M-L Woodland	Hamlet/Village
44CG28	Prehistoric	Camp/Indeterminate
44CG29	Prehistoric	Camp/Indeterminate
44CG30	-	-
44CG31	Prehistoric	Camp/Indeterminate
44CG32	Prehistoric	Camp/Indeterminate
44CG33	Prehistoric	Camp/Indeterminate
44CG34	Prehistoric	Camp/Indeterminate
44CG35	Prehistoric	Camp/Indeterminate
44CG36	Prehistoric	Camp/Indeterminate
44CG37	E Woodland	Camp/Indeterminate
44CG38	L Archaic, E Woodland	Camp/Indeterminate
44CG39	Prehistoric	Camp/Indeterminate

Table 5.1. Temporal Affiliation and Function of Archaeological Sites Recorded Prior to the Craig County Reconnaissance Survey (continued).

Site Number	Temporal Affiliation	Function
44CG40	Prehistoric	Camp
44CG41	Historic	Domestic/Agricultural complex
44CG42	Prehistoric	Camp
44CG43	Prehistoric	Hunting Station
44CG44	Historic	Indeterminate
44CG45	Historic	Domestic
44CG46	E 20th c.	Railroad related
44CG47	L Woodland	Indeterminate
44CG48	L Archaic	Indeterminate
44CG49	L Archaic, L Woodland	Indeterminate
44CG50	Prehistoric	Indeterminate
44CG51	Prehistoric	Camp
44CG52	Prehistoric	Hunting Station
44CG53	Prehistoric	Camp
44CG54	Prehistoric	Camp
44CG55	Prehistoric	Camp
44CG56	Historic	Domestic structure
44CG57	L Archaic	Camp
44CG58	Prehistoric	Camp
44CG59	Prehistoric	Camp
44CG60	Historic	Cemetery
44CG61	M-L Archaic	Camp
44CG62	Prehistoric	Camp
44CG63	Prehistoric	Camp
44CG64	L Archaic	Camp/Indeterminate
44CG65	L Archaic	Camp/Indeterminate
44CG66	Prehistoric	Camp/Indeterminate
44CG67	Historic	Indeterminate
44CG68	Prehistoric	Camp
44CG69	Prehistoric	Camp/Indeterminate
44CG70	Prehistoric	Camp/Indeterminate
44CG71	Prehistoric	Camp/Indeterminate
44CG72	Prehistoric	Camp
44CG73	Prehistoric	Camp
44CG74	Prehistoric	Camp
44CG75	Prehistoric	Camp
44CG76	L Archaic, M-L Woodland	Hamlet/Village
44CG77	Prehistoric	Rockshelter

Table 5.1. Temporal Affiliation and Function of Archaeological Sites Recorded Prior to the Craig County Reconnaissance Survey (continued).

Site Number	Temporal Affiliation	Function
44CG78	Historic	Cemetery
44CG79	Historic	Cemetery
44CG80	L Archaic	Hunting Station
44CG81	Prehistoric	Indeterminate
44CG117	Prehistoric	Indeterminate
44CG171	L 19th - E 20th c.	Iron Ore Mining Camp

Table 5.2 Temporal Affilitation and Function of Archaeological Site Recorded During the Craig County Reconnaissance Survey.

Site Number	Temporal Affiliation	Function
44CG82	Prehistoric,	Camp/Indeterminate
	M 19th-20th	Domestic/Agricultural Complex
44CG83	Prehistoric	Indeterminate
44CG84	L Archaic	Camp/Indeterminate
44CG85	Prehistoric	Camp/Indeterminate
44CG86	E-M Woodland	Camp/Indeterminate
44CG87	Historic	Domestic/Agricultural Complex
44CG88	Prehistoric	Indeterminate
44CG89	M-L Archaic	Camp/Indeterminate
44CG90	M-L Archaic	Indeterminate
44CG91	Prehistoric	Camp/Indeterminate
44CG92	Prehistoric	Camp/Indeterminate
44CG93	Prehistoric	Camp/Indeterminate
44CG94	Prehistoric	Indeterminate
44CG95	Prehistoric	Indeterminate
44CG96	Historic	Lime Kiln
44CG97	E-M 19th c.	Domestic/Agricultural Complex
44CG98	Historic	Domestic/Agricultural Complex
44CG99	Historic	Agricultural Structure
44CG100	L 19th-E 20th	Cemetery
44CG101	L 19th-M 20th	Cemetery
44CG102	19th - E 20th	Cemetery
44CG103	E-L Archaic,	Camp/Indeterminate
	M 19th c.	Domestic/Agricultural Complex
44CG104	E-L Archaic,	Indeterminate
	M-L Woodland	
44CG105	Prehistoric	Indeterminate
44CG106	M-L 19th c.	Brick Kiln
44CG107	E,L Archaic	Camp/Indeterminate
44CG108	Prehistoric	Camp/Indeterminate
44CG109	E Archaic,	Indeterminate
	M-L 19th c.	Domestic/Agricultural Complex
44CG110	M-L Woodland	Camp
44CG111	E 19th-E 20th	Domestic Complex
44CG112	Prehistoric	Indeterminate
44CG113	M 19th-E 20th	Domestic/Agricultural Complex
44CG114	19th-E 20th	Cemetery
44CG115	L 19th-M 20th	Domestic Structure
44CG116	Historic	Agricultural Outbuilding
44CG118	L Archaic,	Indeterminate
	M 19th c.	Indeterminate

Table 5.2. Temporal Affiliation and Function of Archaeological Sites Recorded During the Craig County Reconnaissance Survey (continued).

Site Number	Temporal Affiliation	Function
44CG119	M-L Woodland	Camp
44CG120	E Archaic	Camp
44CG121	Prehistoric,	Indeterminate
	Historic	Indeterminate
44CG122	E Archaic	Camp
44CG123	Prehistoric	Camp
44CG124	Prehistoric	Camp
44CG125	Prehistoric	Camp
44CG126	Prehistoric	Camp
44CG127	Prehistoric	Camp/Indeterminate
44CG128	Prehistoric	Camp
44CG129	Prehistoric	Camp
44CG130	M-L Archaic	Camp
44CG131	Prehistoric	Indeterminate
44CG132	Historic	Domestic Structure
44CG133	Historic	Domestic Structure
44CG134	M-L Archaic	Camp/Indeterminate
44CG135	E 19th-M 20th	Domestic/Agricultural Complex
44CG136	E-M 19th c.	Domestic Complex
44CG137	M-L 19th c.	Saw Mill
44CG138	19th c.	Grist Mill
44CG139	19th c.	Grist Mill
44CG140	M-L Woodland	Rockshelter
44CG141	M 19th c.	Saw Mill
44CG142	Historic	Domestic/Agricultural Complex
44CG143	E-M 19th c.	Domestic Structure
44CG144	E-M 19th c.	Grist Mill
44CG145	L 19th-E 20th	Grist Mill
44CG146	E 19th-E 20th	Cemetery
44CG147	E 19th-L 20th	Cemetery
44CG148	L Archaic,	
	L Woodland,	Camp
	M 19th -20th	Domestic/Agricultural Complex
44CG149	Prehistoric,	Camp
	E-M 20th c.	Domestic Structure
44CG150	L Archaic,	Camp
	M-L Woodland,	Hamlet/Village
	M-L 19th c.	Indeterminate
44CG151	Prehistoric	Indeterminate
44CG152	Prehistoric	Camp

Table 5.2. Temporal Affiliation and Function of Archaeological Sites Recorded During the Craig County Reconnaissance Survey (continued).

Site Number	Temporal Affiliation	Function
44CG153	E, L Archaic	Camp
44CG154	Prehistoric	Camp/Indeterminate
44CG155	M-L 19th	Domestic Structure
44CG156	M Archaic	Camp/Indeterminate
44CG157	E-M 19th c.	Domestic Structure
44CG158	M-L 19th c.	Domestic Structure
44CG159	19th c.	Domestic Structure
44CG160	Prehistoric	Camp/Indeterminate
44CG161	M-L Archaic	Camp/Indeterminate
44CG162	E-L Archaic	Indeterminate
44CG163	L Archaic	Indeterminate
44CG164	Prehistoric	Camp/Indeterminate
44CG165	Prehistoric	Camp/Indeterminate
44CG166	L19th-L20th	Domestic/Agricultural Complex
44CG167	M-L Archaic	Indeterminate
44CG168	M19th-E20th	School
44CG169	E-M 19th c.	Domestic/Agricultural Complex
22-26*	L 19th-E 20th	Domestic Structure
22-27*	Included with 44CG148	
22-28*	Included with 44CG149	
22-29*	E 19th c.	Domestic Structure
22-30*	Included with 44CG168	
22-31*	M 20th c.	Agricultural Structure
22-32*	19th c.	Agricultural Structure
22-33*	Included with 44CG169	

* denotes standing structure

Table 5.3 Statistical Summary of all archaeological sites from Craig County by temporal component.

Temporal Affiliation	Elevation (feet)	Distance to Nearest Drainage (meters)	Distance to Rank >3 Drainage (meters)
Early Archaic (n=12)			
mean	1864.17	33.75	331.67
range	1240-2520	0-100	0-1360
s.d.	448.85	33.65	458.66
Middle Archaic (n=13)			
mean	1967.69	48.69	346.15
range	1360-2520	0-90	0-1270
s.d.	431.01	31.29	468.45
Late Archaic (n=34)			
mean	1675.29	51.56	312.79
range	1150-2520	0-140	0-3260
s.d.	448.20	38.27	607.69
Early Woodland (n=3)			
mean	1620.00	45.00	236.67
range	1300-2200	0-120	80-420
s.d.	503.19	65.38	171.56
Middle Woodland (n=11)			
mean	1710.91	24.55	229.55
range	1150-2480	0-100	0-1130
s.d.	531.21	27.88	381.48
Late Woodland (n=14)			
mean	1617.86	24.29	221.79
range	1150-2480	0-100	0-1130
s.d.	456.60	26.08	335.15
All Prehistoric (n=124)			
mean	1617.66	42.31	392.28
range	1150-3520	0-180	0-3500
s.d.	483.48	40.47	718.17

Table 5.3 Statistical summary of all archaeological sites from Craig County by temporal component (continued).

Temporal Affiliation	Elevation (feet)	Distance to Nearest Drainage (meters)	Distance to Rank >3 Drainage (meters)
Early 19th century (n=12)			
mean	1938.33	26.67	475.83
range	1160-2560	0-100	0-2300
s.d.	539.21	33.39	719.68
Mid 19th century (n=24)			
mean	1972.92	32.71	597.71
range	1150-2560	0-140	0-3880
s.d.	518.92	36.98	932.75
Late 19th century (n=20)			
mean	1965.50	29.75	687.25
range	1150-2560	0-100	0-3880
s.d.	521.77	31.22	986.43
Early 20th century (n=13)			
mean	1882.31	37.69	878.46
range	1150-2560	0-100	0-3880
s.d.	594.42	34.92	1107.0
Mid 20th century (n=6)			
mean	1768.33	54.00	341.67
range	1150-2410	20-90	60-1460
s.d.	613.20	30.50	550.87
All Historic (n=46)			
mean	1955.87	27.78	706.85
range	1150-3200	0-140	0-3880
s.d.	599.87	30.99	842.51
All sites (n=162)			
mean	1715.38	60.44	499.65
range	1150-3520	0-180	0-3880
s.d.	532.13	38.46	776.80

Elevation

The elevation of Craig County varies from 1,120 feet to 3,940 feet above mean sea level. Table 5.3 indicates that the recorded archaeological sites in Craig County are situated between 1,150 feet and 3,520 feet above mean sea level (mean = 1715 feet, s.d. = 532 feet). However, nearly 80% of the recorded sites are located on landforms less than 2,280 feet above mean sea level. While absolute values of elevation may be a used as a factor when constructing predictive models of localized areas, they are expected to become less reliable when extended to a broader region due to the potential geographic variation of natural relief. For this reason, more generalized divisions of an area's natural variation in elevation may be for useful for constructing models of settlement and site location.

The patterned correlation of site locations with lower elevations in Craig County is congruent with hypotheses which suggest the clustering of prehistoric and early historic settlements and site locations at lower elevations as a product of the importance of river systems as a means of transporting people, materials, and information (Holland n.d.; Kegley 1938). Alternatively, if both the rivers and the continuous ridge crests acted as equally important transportation areas, then settlement and site locational

patterns formed by this "dual system of utilization" would indicate that the higher and lower elevations were "subject to more use than the intermediate slopes" (Barber 1983:123). While the recorded archaeological sites in Craig County indicate that all three of these general categories of elevation were used during the prehistoric and historic periods, the majority of the recorded sites are located on landforms of lower elevation. Although this pattern of site location may suggest that elevation provides value for the prediction of site locations, it may just as plausibly be linked to the bias of previous survey work to the lower elevations of alluvial valleys.

Hydrology

In the present study, the hydrologic environmental variable is comprised of three component factors: (1) the distance from an archaeological site to the nearest drainage, (2) the rank size of the nearest drainage, and (3) the distance from an archaeological site to a water course of stream order rank four or greater (see Table 5.3).

Stream order is a descriptive designation of size within a ranked hierarchy of tributaries as discussed by Strahler 1975: 455-456). First order waters have no tributaries, and are typically spring channels. Each successive rank order is

formed by the confluence of two tributaries of the next lower rank size. Stream order provides a general measure of the complexity of a water system. Designation of order, however, is to some extent dependent upon the degree of detail of the map used to identify any given watercourse (Leopold et al. 1964: 138). In the present study, 7.5 minute U.S.G.S. topographic maps were used to identify rank orders of all watercourses. These maps illustrate the following hierarchy of watercourses in Craig County: 577 rank one streams, 143 rank two streams, 27 rank three streams, seven rank four streams, three rank five streams, and one rank six stream.

The Craig County site inventory files and reconnaissance survey results indicate that all prehistoric sites are located within 180 meters of a drainage (mean = 42.31; s.d. = 40.47), and all historic sites are located within 140 meters of a drainage (mean = 27.78; s.d.= 30.99). Furthermore, over 80% (n=100) of the prehistoric sites, and over 91% (n=42) of the historic sites, are located within 70 meters of a drainage. Although watercourses are abundant and proliferate in the Ridge and Valley physiographic province, the patterned correlation of archaeological sites with distance to the nearest water course is suggested to be a useful variable for predicting the presence or absence of an archaeological site.

In Craig county, 39% (n=61) of the recorded archaeological sites were closest to a rank one drainage, 11%

(n=18) were closest to a rank two drainage, 15% (n=24) were closest to a rank three drainage, 9% (n=15) were closest to a rank four drainage, and 26% (n=42) were closest to a rank five or a rank six drainage. Due to the extreme proliferation of existing and relict spring channels (rank one) in the Ridge and Valley area, it is not surprising that a large number of archaeological sites have been recorded adjacent to them. Research conducted in the southern portion of Virginia's Ridge and Valley province has suggested that other environmental factors are often more useful in predicting site locations than the immediate availability of water (Piper 1977, cited in Barber 1983: 123). Additional research is necessary to ascertain the utility of the presence of rank one drainages for predicting the occurrence of archaeological sites.

The final hydrologic variable analyzed is the distance from archaeological sites to watercourses of rank size four or greater. The site file and reconnaissance survey data indicate that all prehistoric sites are located within 3,500 meters of a rank four or greater drainage (mean = 392.28, s.d. = 718.17), and all historic sites are located within 3,880 meters of a rank four or greater drainage (mean = 706.85, s.d. = 842.51). Furthermore, 80% of all archaeological sites are located within 940 meters of a rank four or greater drainage, and nearly 80% of the prehistoric sites are located within 250 meters of a rank four or greater drainage while nearly 80% of

the historic sites are located within 1,250 meters of a rank four or larger drainage.

During the Archaic period, when settlement patterns shifted from widespread mobility between dispersed, short term settlements within loosely defined territories to an increased focus on riverine areas and reduced mobility, over 80% of the recorded sites were located within 420 meters of a rank size four or greater watercourse. With the development of a sedentary lifestyle centered on the abundant resources of stable alluvial valleys, overall settlement patterns began to shift closer to the larger watercourses with 75% (n=21) of the recorded Woodland period sites located within 220 meters of rank size four or greater watercourse.

Site locations for the historic period illustrate the continued movement into new areas as settlements patterns moved from an early focus on the major watercourses to a later focus on the upland areas further removed from large watercourses. During the early and mid 19th century, when the traditional economic system of diversified agriculture was operant nearly 80% (n=28) of the sites were located within 1,000 meters of a rank size four or greater watercourse. During the late 19th century to the mid 20th century, when the development of rail and road transportation networks facilitated the transformation of the traditional economic system to a commercial agricultural system, settlements

continued to expand into areas removed from the major watercourses with over 80% of the known sites located within 1,360 meters from a rank size four or greater watercourse.

Soils and Topography

While the correlation of archaeological site locations with particular soil associations and topographic areas may be valid components of predictive models, the available information for Craig County restricts this analysis. The gross level of the soils mapping (see Figure 2.3), the lack of probabilistic survey data from previous surveys, and the unintensive level of previous surveys precludes definitive statements regarding the correlation of archaeological site locations with soil associations. Rather, the available information limits this analysis to general observations.

At the gross level of soil associations, 82 percent of the sites discovered during the Craig County reconnaissance survey, and 80 percent of the total recorded archaeological sites in Craig County occur on the Monongahela-Purdy-Chavies-Pope (MPCP) and Frederick-Lodi-Clarksville-Hayter (FLCH) soil associations which cover less than 50% of the surface area in the county (see Figure 2.3 and pages 2.29 - 2.31 for descriptive information pertaining to these soil associations).

The percentages of archaeological site components from each time period which are located on the MPCP and FLCH soil associations remain consistently high throughout the historic and prehistoric time periods (see Table 5.4). These high percentages are not surprising as these two soil associations comprise the majority of the county's fertile soils, and are adjacent to the mid- to large-rank size watercourses of the county (see Figure 2.2). The MPCP soil association covers the floodplains and terraces adjacent to the mid- to large-rank size (rank sizes 4 - 6) watercourses of the county, and the FLCH soil association covers the floodplains, terraces, and ridge slopes adjacent to low- and mid-rank size (1 - 4) watercourses in the southwestern portion of the county. Because these soils are located in, or adjacent to, the alluvial bottomlands and constitute the most fertile soils in the county, they have undergone relatively intensive agricultural use. Continuous plowing has offered a high degree of surface exposure and has facilitated site discovery.

However, the characteristic fertile and well-drained soils of the alluvial valleys have undoubtedly remained a focus of social and economic systems throughout prehistory and history. The percentages of known archaeological sites on the MPCP soil association remain consistently high for each of the temporal components of the prehistoric time period. The MPCP

Table 5.4 Percentages of known archaeological sites by temporal component on the Monongahela-Purdy-Chavies-Pope and the Frederick-Lodi-Clarksville-Hayter soil associations.

Temporal Affiliation	MPCP	FLCH	MPCP & FLCH
Early Archaic	50%	42%	92%
Middle Archaic	46%	54%	100%
Late Archaic	65%	23%	88%
Early Woodland	67%	00%	67%
Middle Woodland	64%	27%	91%
Late Woodland	72%	21%	93%
Early 19th century	33%	58%	91%
Mid 19th century	33%	58%	91%
Late 19th century	25%	65%	90%
Early 20th century	31%	54%	85%
Mid 20th century	50%	50%	100%

soil association comprises the fertile, alluvial sediments which form the floodplains and lower terraces bordering the mid- to large-rank size watercourses (rank sizes 4 - 6) of Craig County.

The consistently high percentages of known site components from the prehistoric time period which are located on the floodplains and lower terraces of the MPCP soil

association (see Table 5.4) reflect a continually increasing focus of prehistoric settlement and subsistence systems on the alluvial areas. The higher percentages (65% - 72%, see Table 5.4) of Late Archaic through Late Woodland site components located on the floodplains and terraces of the MPCP soil association correspond to a period of time when paleoclimatic conditions facilitated the development of relatively stable alluvial environments, and social systems began the adoption of sedentary lifestyles and subsistence economies which centered on horticulture and the abundant resources of the alluvial areas (see Chapters 2 and 3).

These same temporal patterns of site locations do not appear on the FLCH soil association which surrounds low- to mid-rank size watercourses (rank sizes 1 - 4). The lower percentages of known archaeological site components recorded on the fertile FLCH soil association may be related to the smaller size of the watercourses. Stream rank size, and associated terrace development, in these areas have been limited because the karst morphology of the local landscape has captured much of the surface water. The small rank sizes of the surface waters in these areas may not have facilitated prehistoric communication, transportation, and economic systems to the degree of larger rank size watercourses. This factor may account for the lower percentages of known site components located on the surrounding FLCH soil associations.

The limited amount of site survey conducted on landforms covered by the FLCH soil association requires additional research before a more firm interpretation of the temporal patterns of site locations may be formulated.

The fertile lands of the alluvial bottomlands have also remained attractive for the historic settlement systems which centered upon an agrarian economy, and navigable streams as a means of transportation. While the rich soils of the floodplains could support an agrarian economy, and are known to have been used extensively during the historic period, archaeological visibility of this use is expected to be low since these areas are prone to flooding and were primarily used for crop land. In contrast, the adjacent terrace areas are expected to have a higher visibility of historic archaeological sites since these higher elevations are less likely to flood and are better suited for domestic and agricultural buildings.

These observations are supported by the archaeological site inventory files, and the results of the Craig County reconnaissance survey, which indicate that 22 percent of the recorded historic sites are located in the floodplain areas, and 35 percent of the recorded historic sites are located on the adjacent terraces. Historic period sites located in floodplains include: six grist and saw mills, two domestic/agricultural complexes, one artifact scatter of

undetermined function, and one stone foundation for a railroad crossing. Historic period sites located on alluvial terraces include: 12 domestic and agricultural complexes, three artifact scatters of undetermined function, and one site related to the iron ore industry. Excluding sites of economic function (grist/saw mills, railroad related site), only six percent (n= 3) of the known historic period sites are located on floodplains, while 32% of the known historic sites are located on terraces.

The remaining five soil associations in Craig County cover the ridge systems and the small upland valleys. Sixteen percent (n=16) of the recorded prehistoric and historic archaeological sites are dispersed throughout the county on these soil associations. However, the percentages of dated components of archaeological sites on all of these soil associations are consistently low, ranging from 1.1% on the Weikert-Berks soil association to 6.7% on the Dekalb-Lily-Lehew-Jefferson soil association. Since it is expected that both prehistoric and historic settlement and subsistence systems would have utilized upland areas covered with these soil associations, the very low percentages of recorded archaeological sites on these areas suggests a bias of previous archaeological surveys within Craig County against the upland areas which are heavily vegetated, and for the alluvial areas where agricultural practices promote site

visibility and discovery.

Random Transect Survey Results

The estimation of site densities in the project area is computed by dividing the number of observed sites by the total acreage surveyed to derive the number of expected sites per acre. However, this apparently simple task is disguised by a number of issues concerning sampling interpretation and field methodology. First, without the advantage of an efficient and uncostly method of testing for the presence of deeply buried sites in alluvial settings, the field methodology employed in this study may underestimate true site density. Second, the size interval between shovel test pits on survey transects will affect the number and type of sites discovered (Lightfoot 1986). The methods used in this study allow some confidence that all sites of 20 meters in diameter or greater have been observed. However, because artifacts are not evenly distributed across a site, the possibility exists that a site intersected by a transect may not have been observed (Nance and Ball 1986; Kintigh 1988). Therefore, all site density figures should be viewed as estimations of site density. Additionally, since probabilistic survey methods played only a small part of the Craig County reconnaissance survey, the number of transects studied is very small. Consequently, the

site density projections should be viewed only as preliminary estimations of minimum site density for areas adjacent to watercourses of rank size five and six. As additional transects are studied in future survey projects, the precision of these site density projections will increase and provide greater interpretive power in the study of regional prehistory and history.

The site density estimates for Craig County are based upon those archaeological sites observed on randomly located survey transects along Craig and Johns creeks. Table 5.5 lists all of the survey transects completed during the reconnaissance survey. As indicated by Table 5.5, survey transects #2 and #6 were purposively placed, and, therefore, are excluded from the analysis.

Both Johns Creek and Craig Creek are rank size five drainages, but as Johns Creek makes its confluence with Craig Creek, the rank size of Craig Creek increases to rank six. Two transects were placed along the rank size six section of Craig Creek, and two transects were placed along Johns Creek and the rank five section of Craig Creek.

The site density estimate for all archaeological sites along rank size five and six drainages in Craig County is one site per 2.096 acres (.47 sites per acre). This site density estimate includes one prehistoric site per 3.14 acres (.31 sites per acre), and one historic site per 6.29 acres (.15

Table 5.4. Completed Survey Transects

Transect Number	Drainage Area	Random/ Purposive	Acres	Sites Located
1	Johns Creek	Random	2.22	1 prehistoric
2	Jones Branch	Purposive	2.96	1 prehistoric
3	Craig Creek	Random	2.76	1 prehistoric
4	Craig Creek	Random	3.75	2 prehistoric 2 historic
5	Craig Creek	Random	3.85	none
6	Craig Creek	Purposive	2.17	2 prehistoric

sites per acre). The site density estimate for prehistoric archaeological sites along rank size five drainages in Craig County is one site per 2.49 acres (.40 sites per acre). The lack of observed historic sites on these two transects precludes the estimation of historic site densities. The site density estimate for prehistoric archaeological sites along rank size six drainages in Craig County is one site per 1.9 acres (.52 sites per acre), including one prehistoric site per 3.8 acres (.26 sites per acre), and one historic site per acre (.26 sites per acre).

The estimated site density for all archaeological sites located adjacent to large rank size drainages in Craig County

(one site per 2.096 acres) is comparable to similar studies conducted along large rank size drainages in the central Virginia Piedmont area. The site density for all archaeological sites along the James River is one site per 2.50 acres (Hantman 1986: 162) in Buckingham County, and one site per 2.13 acres in Fluvanna County (Klatka 1988: 7-37). This includes similar site densities for prehistoric sites: one site per 3.14 acres in Craig County, one site per 2.9 acres in Buckingham County (Hantman 1986: 162), and one site per 2.13 acres in Fluvanna County (Klatka 1988: 7-38).

The prehistoric and historic archaeological site density estimates for Craig County are expected to change as additional probabilistic surveys are conducted. The random transect component of the Craig County reconnaissance survey was implemented along drainages of high rank size. As additional probabilistic surveys are conducted in other areas adjacent to the major watercourses, the precision of the site density estimate will increase. Any revision of the site density estimate is expected to be minor, and will reflect the decrease of the standard error of the estimate as the sample size increases.

The archaeological site density estimates for areas in the county adjacent to major watercourses are expected to be high relative to upland areas where low rank size watercourses are more prolific. Four probabilistic surveys conducted in

central Virginia have repeatedly indicated that site densities are higher for areas adjacent to major watercourses, and lower for areas adjacent to minor water courses (Hantman 1985, 1986; Klatka 1988; Klein 1988). This research has suggested that prehistoric "site densities may be inversely related to distance to a major drainage" (Klein 1988: 79). Therefore, as probabilistic surveys are conducted for upland areas in Craig County, site density estimates are expected to be lower than density estimates for areas adjacent to major watercourses as provided in this report.

A comparison of historic site densities illustrates dissimilarities between the various studies cited above. Historic site density is one site per 6.29 acres for Craig County, one site per 12.4 acres in Buckingham County (Hantman 1986: 162), one site per 13.86 acres in Fluvanna County (Klatka 1988: 7-38), and one site per 13.46 acres in Orange County (Klein 1988:86). These dissimilarities are likely the result of differing historic period settlement and economic systems which were operating in central Virginia and western Virginia. The low site density pattern in central Virginia likely reflects a settlement pattern enacted by wealthy planters who patented large tracts of land for agricultural plantations. While the historic site density figure for Craig County varies from the estimates for Buckingham, Fluvanna, and Orange counties, it is similar to site density figures in the

interior of Buckingham County (one site per 8 acres). In both of the interior of Buckingham County and in Craig County, the historic settlement process was undertaken by less wealthy farmers who patented small tracts, relative to the James River plantations, for farmsteads.

Conclusions and Recommendations for Future Research

To summarize the above discussion of selected environmental variables from the Craig County site files, 80% of the recorded sites may be described by the following criteria:

1) On landforms less than 2,280 feet in elevation above mean sea level;

2) On the Monongahela-Purdy-Chavies-Popes or the Frederick-Lodi-Clarksville-Hayter soil associations;

3) Within 70 meters (230 feet) of a watercourse; and

4) Within 940 meters (3,084 feet) of a rank size four or greater watercourse.

The utility of any predictive model is dependent upon the data from which it is constructed. Any biases inherent in the data base will be perpetuated in ensuing predictive models. A number of biases exist in the existing Craig County site file. The most striking biases in the Craig County site files include the absence of Paleoindian sites and prehistoric quarry sites. Additional biases include an overemphasis on

areas of lower elevations, and a low estimation of Early Woodland period sites and historic period sites of all functional types.

Prior to the Craig County reconnaissance survey only 2% (n=2) of the recorded sites in the county consisted of historic period domestic sites. While an additional 25 domestic sites were recorded during the reconnaissance survey, the systematic random survey data allow a historic site estimate of one domestic/agricultural site per every 6.29 acres. Although these random survey data should be viewed as preliminary estimations, when considered together with the purposive data, it becomes clear that the number of recorded historic domestic sites is not representative of the county's resources.

The informal and unstructured "pedestrian" survey techniques do provide an efficient means of recording a large number of sites during a short period of time. These traditional survey methods are well suited for locating the atypical sites of a locale, and recording the functional range of site types of an area. However, these technique are most often biased to certain landforms or land areas. Systematic survey techniques which employ randomly placed sampling units constitute an unbiased survey methodology which provides a means of evaluating the relative frequencies and densities of the range of site types within a region. When merged together

into a unified survey design, these two survey methods provide the best means of recording and evaluating the nature of a region's distribution of prehistoric and historic archaeological resources.

The Craig County reconnaissance survey was conducted in order to supplement the limited nature of the existing archaeological site inventory of the county. Following this initial phase of the identification and evaluation process, archaeological sites may be evaluated for integrity, ranked according to regional criteria of significance, and further identified within specific historical contexts.

The archaeologicl sites discovered during the reconnaissance survey are only partially understoond. Although controlled surface collection techniques and systematic shovel testing are useful techniques for identifying and interpreting sites, these techniques do not provide information with the high degree of interpretive potential that is gained through formal site testing or full-scale excavation.

Based upon the current understanding of the nature and condition of the archaeological sites in Craig County, the following prehistoric and historic sites are considered to warrant future research since they are likely to contribute to our understanding of the prehistory and history of southwest Virginia;

Prehistoric Sites - 44CG47, 44CG48, 44CG49, 44CG72, 44CG76, 44CG81, 44CG95, 44CG104, 44CG107, 44CG110, 44CG119, 44CG119, 44CG122, 44CG123, 44CG124, 44CG125, 44CG126, 44CG128, 44CG129, 44CG130, 44CG148, and 44CG150. These sites represent camp sites and hamlets/villaages, and vary in size, artifact density, temporal affiliation, and topographic location. Preservation on each site appears to be good, and is limited to plowing and natural erosion. These prehistoric sites appear to have the potential to contribute to our understanding of social evolution (including such themes as demography, subsistence, settlement patterns, and socio-political organization~~s~~) from the Early Archaic through the Late Woodland time periods.

Historic Sites - 44CG37, 44CG87, 44CG97, 44CG103, 44CG109, 44CG113, 44CG118, 44CG135, 44CG137, 44CG139, 44CG141, 44CG144, 44CG145, 44CG143, 44CG155, 44CG157, 44CG158, and 44CG169. The sites represent domestic artifact scatters, domestic structures, agricultural/domestic complexes, and mills. All of the sites appear to be in good condition, with only minor disturbance through plowing or natural deterioration. These historic sites appear to have the potential for contributing to our understanding of the changing patterns of domestic and economic (that is, commerce and industry) life during the 19th century as settlement expanded throughout the county, and the

local economy shifted under the influence of the transformation of capitalism.

In closing this report, it is recommended that future site survey projects in Craig County, and the western Virginia region in particular, be structured around probabilistic sampling techniques in conjunction with more traditional intuitive survey techniques. Such a survey methodology should also include archival research of historic site locations, interviews with local landowners, the photographic documentation of private artifact collections. These survey methods should also include techniques for the systematic evaluation of site size and the nature of surface and subsurface distributions of artifacts at discovered sites.

These methods and techniques will not only permit a thorough documentation of regional archaeological resources, but will also increase the interpretive power of site file data, and thereby enhance the formulation of preservation techniques to guard our link to the study of regional prehistory and history.

References Cited

Adams, J., and Martha Woodhouse
1979 EIS cultural resources reconnaissance of the Craig Creek bridge site #0606-022-126,C-501. Report prepared by the Washington and Lee Preservation Office for the Virginia Research Center for Archaeology, Richmond.

Alvord, Clarence W., and Lee Bidgood
1912 The first explorations of the Trans-Allegheny region by the Virginians, 1650-1674. Arthur H. Clark Company, Cleveland, Ohio.

Amato, Roger V.
1974 Geology of the Salem quadrangle, Virginia. Virginia Division of Mineral Resources, Report of Investigations 37, Charlottesville.

Anderson, David G.
1990 The Paleoindian colonization of eastern North America: A view from the southeastern United States. Research in Economic Anthropology, Supplement 5: 163-216.

Anderson, David G., and Glen T. Hanson
1988 Early Archaic settlement in the Southeastern United States: A case study from the Savannah River Valley. American Antiquity 53(2): 262-286.

Austin, J. William and Rebecca H.R. Austin
1982? Botetourt county history before 1800. Published by the Publications Committee, Botetourt County American Bicentennial Commission.

Baldwin, John L.
1975 Weather atlas of the United States. Reprint of 1968 edition. Gale Research Company, Detroit.

Barber, Michael B.
1983 Archaeological perspective of the northern Blue Ridge. In Upland archeology in the East: A symposium, organized by C.R. Geier, M.B. Barber, and G.A. Tolley, pp. 116-129. United States Forest Service, Southern Region, Cultural Resources Report, No. 2.

1988 The Thomas-Sawyer Site (44RN39b) Salem, Virginia: A progress report on emergency

excavations, December 1988. Unpublished report on file at the Virginia Department of Historic Resources, Richmond.

Barber, Michael B. and Eugene B. Barfield
1989 Paleoindian chronology for Virginia. In Paleoindian research in Virginia: A synthesis, edited by J.M. Wittkofski and T.R. Rinehart, pp. 53-70. Archeological Society of Virginia, Special Publication No. 19.

Barber, Michael B. and John C. Baroody
1977 Analysis of vertebrate faunal remains from the Shannon Site, Montgomery County, Virginia. Archeological Society of Virginia, Quarterly Bulletin (31)3: 101-113.

Barfield, Lori
1990 Fenwick mine complex. Manuscript on file at the U.S.D.A., United States Forest Service, Roanoke, Virginia.

Bartholomew, Mervin J.
1981 Geology of the Roanoke and Stewartsville quadrangles, Virginia. Virginia Division of Mineral Resources, Publication 34. Charlottesville.

Bass, Stuart
1981 Cultural resource inventory of proposed Barbours Creek timber sale and associated timber road. Report prepared by the Jefferson National Forest, Roanoke, Virginia.

Benthall, Joseph L.
1969 Archeological investigation of the Shannon Site, Montgomery County, Virginia. Virginia State Library, Richmond.

1990 Daugherty's Cave: A stratified site in Russell County, Virginia. Archeological Society of Virginia, Special Publication, Number 18.

Bernabo, J.C.
1981 Quantitative estimates of temperature changes over the last 2700 years in Michigan based on pollen data. Quaternary Research 15: 143-159.

Bott, Keith E.

1981 44RU7: Archaeological test excavations at a Late Woodland village in the lower uplands of southwest Virginia. Virginia Department of Historic Resources, Research Report Series, No. 2.

Boyd, C. Clifford
1986 An evolutionary approach to the prehistory of upper east Tennessee and adjacent areas. Ph.d. dissertation, Department of Anthropology, University of Tennessee, Knoxville.

1989 Paleoindian paleoecology and subsistence in Virginia. In Paleoindian research in Virginia: A synthesis, edited by J.M. Wittkofski and T.R. Rinehart, pp. 139-156. Archeological Society of Virginia, Special Publication No. 19.

Braun, E. Lucy
1950 Deciduous forests of eastern North America. Hafner Press, New York.

Brown, James A.
1989 The beginnings of pottery as an economic process. In What's New?: A closer look at the process of innovation, edited by S.E. van der Leew and R. Torrence, pp. 203-224. Unwin Hyman, London.

Broyles, Bettye
1971 The St. Albans site, Kanawha County, West Virginia. West Virginia Geological and Economic Survey, Report of Archeological Investigations, 6.

Bruce, Kathleen
1930 Virginia iron manufacture in the slave era. The Century Company, New York.

Buchanan, William T.
1986 The Trigg Site, City of Radford, Virginia. Archeological Society of Virginia, Special Publication, Number 14.

Bushnell, David I., Jr.
1907 Discoveries beyond the Appalachian Mountains in September, 1671. American Anthropologist 9: 45-56.

Butts, Charles

1973 Geology of the Appalachian Valley in Virginia. Part I: Geologic text and illustrations. Virginia Division of Mineral Resources, Bulletin 52. Charlottesville.

Byrd, William
1967 William Byrd's histories of the dividing line betwixt Virginia and North Carolina. Introductions by W.K. Boyd and P.G. Adams. Dover Publications, New York.

Bryson, Reid A.
1970 The character of climatic change and the end of the Pleistocene. Abstracts of the First Meeting of the American Quaternary Association (AMQUA). Bozeman.

Cabell, N.F.
n.d. Early history of agriculture in Virginia. L. Towers, Washington.

Carbone, Victor A.
1976 Environment and prehistory in the Shenandoah Valley. Ph.D. dissertation, Catholic University of America. University Microfilms, Ann Arbor.

1982 Environment and society in archaic and woodland times. In Practicing environmental archaeology: Methods and interpretations, edited by R.W. Moeller, pp. 39-52. American Indian Archaeological Institute, Occasional Paper No. 3. Connecticut: American Indian Archaeological Institute.

Carbone, Victor A., Antonio Segovia, John Foss, Marc Sheehan, Don Whitehead, and Stephen Jackson
1982 Paleoenvironmental investigations along the Savannah River Valley, Richard B. Russell Dam and Lake Project. Paper presented at the 39th Annual Southeastern Archaeological Conference, Memphis, Tennessee.

Chapman, Jefferson
1973 The Icehouse Bottom site, 40MR23. University of Tennessee, Department of Anthropology, Report of Investigations 13.

1975 The Rose Island site and the bifurcated point tradition. University of Tennessee, Department

of Anthropology, Report of Investigations 14.

1977 Archaic period research in the Lower Little Tennessee River Valley - 1975: Icehouse Bottom, Harrison Branch, Thirty Acre Island, Calloway Island. University of Tennessee, Department of Anthropology, Report of Investigations 18.

Claggett, Stephen R., and John S. Cable
1982 The Haw River sites: Archaeological investigations at two stratified sites in the North Carolina piedmont. Report prepared by Commonwealth Associates Inc. for U.S. Army Corp of Engineers, Wilmington District.

Clark, Wayne E.
1976 An archaeological assessment of the New Castle 201 Study Area, Craig County, Virginia. Report prepared by the Virginia Research Center for Archaeology, Richmond.

Coe, Joffre L.
1964 The formative cultures of the Carolina piedmont. Transactions of the American Philosophical Society 54(5).

Custer, Jay F.
1979 An evaluation of sampling techniques for cultural resources reconnaissance in the Middle Atlantic area of the eastern United States. Ph.D. dissertation, Catholic University of America.

1983 The New River sampling simulation: Evaluation of reconnaissance level survey techniques in the Appalachian Highlands. Southeastern Archaeology 2: 73-82.

1988 Late Archaic cultural dynamics in the central Middle Atlantic region. Journal of Middle Atlantic Archaeology 4: 39-59.

1990 Early and Middle Archaic cultures of Virginia: Culture change and continuity. In Early and Middle Archaic research in Virginia: A synthesis, edited by T.R. Rinehart and M.E.N. Hodges, pp. 1-60. Archeological Society of Virginia, Special Publication No. 22.

Delcourt, Hazel R., and Paul A. Delcourt
1981 Vegetation maps for eastern North America: 40,000 yr. B.C. to the present. In Geobotony II, edited by R.C. Romans, pp. 123-165. Plenum Press, New York.

1985 Quaternary palynology and vegetational history of the southeastern United States. In Pollen records of Late-Quaternary North American sediments, edited by V.M. Bryant and R.G. Holloway, pp. 1-37. Dallas: American Association of Stratigraphic Palynologists Foundation.

1986 Late Quaternary vegetational change in the central Atlantic States. In The Quaternary of Virginia - A symposium volume, edited by J.N. McDonald and S.O. Bird, pp. 23-35. Commonwealth of Virginia, Division of Mineral Resources, Charlottesville.

Diamond, Seth J., and Robert H. Giles
1987 A vegetational history of Virginia's Ridge and Valley Province. Archeological Society of Virginia, Quarterly Bulletin 42(2): 177-187.

Dickens, Roy S., H. Trawick Ward, and R.P. Stephen Davis
1987 The Siouan project: Seasons I and II. Research Laboratories of Anthropology, University of North Carolina, Monograph Series, No. 1.

Dietrich, Richard V.
1970 Geology and Virginia. University Press of Virginia, Charlottesville.

Egloff, Keith T.
1987 Ceramic study of Woodland occupation along the Clinch and Powell rivers in Southwest Virginia. Virginia Department of Historic Resources, Research Report Series No 3.

1990 Late Woodland period regional overview: Southwest region. Paper presented at the Virginia Prehistoric Indian Symposium IV: Middle and Late Woodland periods. Richmond.

Egloff, Keith T., and Joseph M. McAvoy
1990 Chronology of Virginia's Early and Middle Archaic periods. In Early and Middle Archaic

research in Virginia: A synthesis, edited by T.R. Rinehart and M.E.N. Hodges, pp. 61-79. Archeological Society of Virginia, Special Publication No. 22.

Fenneman, Nevin M.
1938 Physiography of the eastern United States. McGraw Hill, New York.

Foss, Robert W., and Perry Tourtellotte
1982 Phase I cultural resources inventory survey of the proposed Garten Land Exchange, Report prepared by the Jefferson National Forest, Roanoke, Virginia.

Gardner, William M.
1974 The Flint Run Paleoindian Complex: Pattern and process during the Paleoindian to Early Archaic. In The Flint Run Paleo-indian complex: A preliminary report, 1971-1973 seasons, edited by W.M. Gardner, pp. 5-47. Catholic University of Archaeology Laboratory, Occasional Publication No. 1

1983 Stop me if you've heard this one before: The Flint Run Paleoindian Complex revisited. Archaeology of Eastern North America 11: 49-59.

1984 External cultural influences in the western Middle Atlantic: A neodiffusionist approach, or you never know what went on under the rhododendron bush until you look. In Upland Archeology in the east: Symposium 2, edited by M.B. Barber, pp. 117-146. United States Department of Agriculture, Forest Service, Southern Region, Cultural Resources Report No. 5.

1989 An examination of cultural change in the late Pleistocene and early Holocene (circa 9200 to 6800 B.C.). In Paleoindian research in Virginia: A synthesis, edited by J.M. Wittkofski and T.R. Rinehart, pp. 5-51. Archeological Society of Virginia, Special Publication No. 19.

Gardner, William M., and Robert A. Verrey
1979 Typology and chronology of fluted points from the Flint Run area. Pennsylvania Archaeologist 49(1): 13-46.

Geier, Clarence R.
1990 The Early and Middle Archaic periods: Material culture and technology. In Early and Middle Archaic research in Virginia: A synthesis, edited by T.R. Rinehart and M.E.N. Hodges, pp. 81-98. Archeological Society of Virginia, Special Publication No. 22.

Geier, Clarence R., Michael B. Barber, and George A. Tolley, Organizers
1983 Upland Archeology in the east: A symposium. United States Forest Service, Southern Region, Cultural Resources Report No. 2.

Giles County Historical Society
1982 Giles County, Virginia: History, families. Walsworth Publishing Company, Marceline, Missouri

Godfrey, Michael M.
1980 A Sierra Club naturalist's guide to the Piedmont. Sierra Club Books, San Francisco.

Guilday, John E.
1967 The climatic significance of the Hosterman's Pit local fauna, Centre County, Pennsylvania. American Antiquity: 32: 231-232.

1971 The Pleistocene history of the Appalachian mammal fauna. In The distributional history of the biota of the southern Appalachians, Part III: The vertebrates, edited by P.C. Holt, pp. 233-262. Virginia Polytechnic Institute and State University, Research Division Monograph No. 4.

Guilday, John E., Paul W. Parmalee, and H. W. Hamilton
1977 The Clark's Cave bone deposit and the late Pleistocene paleoecology of the central Appalachian Mountains of Virginia. Bulletin of the Carnegie Museum of National History, No. 2. Carnegie Museum of National History, Pittsburgh.

Handley, Charles O.
1971 Appalachian mammalian geography - recent epoch. In The distributional history of the biota of the southern Appalachians, Part III: The vertebrates, edited by P.C. Holt, pp. 263-303. Virginia Polytechnic Institute and State University, Research Division Monograph, No. 4.

Hantman, Jeffrey L.
1985 The archaeology of Albemarle County: Results of a systematic survey of proposed development areas in Albemarle County, Virginia. Department of Anthropology, University of Virginia, Archaeological Monograph Series, No. 2.

1986 Survey and site file data: A synthesis. In Archaeological Survey in Buckingham County, Virginia, by T. Klatka, M. Klein, G. Dunham, and J. Hantman, pp. 144-167. Department of Anthropology, University of Virginia, Archaeological Monograph Series, No. 3.

1990 The Early and Middle in Virginia: A North American perspective. In Early and Middle Archaic research in Virginia: A synthesis, edited by T.R. Rinehart and M.E.N. Hodges, pp. 133-153. Archeological Society of Virginia, Special Publication No. 22.

Hayden, Bruce P.
1979 Atlas of Virginia precipitation. University Press of Virginia, Charlottesville.

Henretta, James A.
1978 Families and farms: Mentalite in pre-industrial America. William and Mary Quarterly 35(1): 3-32.

Henretta, James A., W. Elliot Brownlee, David Brody, and Susan Ware
1987 America's history. Dorsey Press, Chicago.

Hinden, M.
1957 How justice grew, Virginia counties: An abstract of their formation. 350th Anniversary Celebration Corporation, Williamsburg, Virginia.

Holland, C. G.
n.d. A synthesis of Virginia archaeology and ethnohistory. Unpublished manuscript on file at the Virginia Department of Historic Resources, Richmond.

Hubbard, John P.
1971 The avifauna of the southern Appalachians: Past and present. In The distributional history of the biota of the southern Appalachians, Part

III: The vertebrates, edited by P.C. Holt, pp. 197-232. Virginia Polytechnic Institute and State University, Research Division Monograph No. 4.

Jehle, Patricia A. and Kurt W. Carr
1983 The Southeastern Pennsylvania upland archaeological project: Intrasite analysis of plowzone sites. Manuscript on file with the Pennsylvania Historical and Museum Commission.

Johnson, Michael F.
1989 The lithic technology and material culture of the first Virginians: An eastern Clovis perspective. In Paleoindian research in Virginia: A synthesis, edited by J.M. Wittkofski and T.R. Rinehart, pp. 95-138. Archeological Society of Virginia, Special Publication No. 19.

Judge, W. James, James I. Ebert, and Robert K. Hitchcock
1975 Sampling in regional archaeological survey. In Sampling in archaeology, edited by J.W. Mueller, pp. 82-123. University of Arizona Press, Tucson.

Kagey, Deedie
1988 When past is prologue: A history of Roanoke County. Walsworth Press, Incorporated, Marceline, Missouri.

Kauffman, Barbara E, and Joseph J. Dent
1978 Preliminary floral and faunal recovery and analysis at the Shawnee Minisink Site (36MR43). In Practicing Environmental Archaeology: Methods and Interpretations, edited by R.W. Moeller, pp. 7-11. American Indian Archaeological Institute, Occasional Paper, 3.

Kegley, F.B.
1938 Kegley's Virginia frontier. Southwest Virginia Historical Society, Roanoke, Virginia.

Kintigh, Keith W.
1988 The effectiveness of subsurface testing: A simulation approach. American Antiquity 53(4): 686-707.

Klatka, Thomas S.
1988 Archaeological Survey in Fluvanna County, Virginia. Department of Anthropology,

University of Virginia, Archaeological Survey Monograph Series, No. 5.

1990 1990 salvage excavations at the Graham-White site (44RN21). Paper presented at the 50th Annual meeting of the Archeological Society of Virginia, Richmond.

Klein, Michael J.
1988 The Montpelier periphery: An archaeological survey. Department of Anthropology, University of Virginia, Archaeological Survey Monograph Series, No. 4.

Klein, Michael J. and Thomas S. Klatka
1989 Late Archaic and Early Woodland demography and settlement patterns. Paper presented at the Virginia Prehistoric Indian Symposium III: Late Archaic and Early Woodland Periods. Richmond.

Krakker, J.J., Mark J. Shott, and P.D. Welch
1983 Design and evaluation of shovel test sampling in regional archaeological survey. Journal of Field Archaeology 10: 469-480.

Kulikoff, Allan
1989 The transition to capitalism in rural America. William and Mary Quarterly, Third Series 46(1): 120-144.

Leopold, Luna B., M. Gordon Wolmar, and John P. Miller
1964 Fluvial processes in geomorphology. W.H. Freeman and Company, San Francisco.

Lesure, Frank G.
1957 Geology of the Clifton Forge Iron District, Virginia. Bulletin of the Virginia Polytechnic Institute, Engineering Experiment Station Series No. 118.

Lightfoot, Kent G.
1986 Regional surveys in the eastern United States: The strengths and weaknesses of implementing subsurface testing programs. American Antiquity 51(3): 484-504.

Lynch, B.M.
1980 Site artifact density and the effectiveness of shovel probes. Current Anthropology 21: 516-

517.

MacCord, Howard A.
1986 The Lewis Creek Mound Culture in Virginia. Privately printed, Richmond.

Martin, Joseph
1835 A new and comprehensive gazetteer of Virginia. Moseley and Tompkins, Charlottesville, Virginia.

McCary, Ben C.
1983 The Paleo-indian in Virginia. Archeological Society of Virginia, Quarterly Bulletin 38(1): 43-69.

1987 Survey of Virginia fluted points, nos. 771-800. Archeological Society of Virginia, Quarterly Bulletin 42(3): 121-132.

McDaniel, John, James Adams, Parker Potter, Howard Herndon, and Michael Gregory
1981 Phase I archaeological survey of the areas to be impacted by the Craig-New Castle Public Service Authority's New Castle Wastewater Facilities Plan, New Castle, Virginia. Report prepared by Washington and Lee University Archaeology Laboratory for Anderson and Associates, Inc., Blacksburg, Virginia.

McGuire, Odell S.
1970 Geology of the Eagle Rock, Strom, Oriskany, and Salisbury quadrangles, Virginia. Virginia Division of Mineral Resources, Report of Investigations 24. Charlottesville.

1976 Geology of the Daleville quadrangle, Virginia. Virginia Division of Mineral Resources, Report of Investigations, 42. Charlottesville.

McLearen, Douglas
1989 Late Archaic and Early Woodland material culture and technology. Paper presented at the Virginia Prehistoric Indian Symposium III: Late Archaic and Early Woodland periods. Richmond.

McManamon, Frank P.
1981 Parameter estimates and site discovery in the Northeast. Contract Abstracts and CRM Archaeology 1: 43-48.

1984 Discovering sites unseen. Advances in archaeological method and theory 7: 223-292.

Merrill, M
1976 Cash is good to eat: Self-sufficiency and exchange in the rural economy of the United States. Radical History Review 4(1): 42-69.

Miller, Mark F.
1985 Roanoke Valley and the Civil War: Continuity and change. Center for Community Research, Roanoke College, Salem, Virginia.

Mitchell, Robert D.
1973 Agricultural change and the American Revolution: A Virginia case study. Agricultural History 47(2): 119-132.

Morton, Oren O.
1916 A history of Monroe County, West Virginia. The McClure Company, Staunton, Virginia.

1923 A centennial history of Allegheny County, Virginia. J.K. Ruebush Company, Dayton, Virginia.

Mouer, L. Daniel
1989 Overview of the Late Archaic and Early Woodland periods. Paper presented at the Virginia Prehistoric Indian Symposium III: Late Archaic and Early Woodland periods. Richmond.

Nash, Carol
1989 Late Archaic and Early Woodland chronology. Paper presented at the Virginia Prehistoric Indiam Symposium III: Late Archaic and Early Woodland periods. Richmond.

Nance, James D., and B. F. Ball
1986 No surprises? The reliability and validity of test pit sampling. American Antiquity 51: 457-483.

Piper, Harry M.
1977 Prehistoric settlement-subsistence areas in the Mount Rogers National Recreation Area, Virginia. M.A. Thesis, University of South Florida.

Plog, Stephen E.

1976 Relative effectiveness of sampling techniques for archaeological surveys. In The early Mesoamerican village, edited by K.V. Flannery, pp. 136-158. Academic Press, New York.

Plog, Stephen E., Fred Plog, and Walter Wait
1978 Decision making in modern surveys. Advances in archaeological method and theory 1: 383-421.

Raitz, Karl B., and Richard Ulack
1984 Appalachia: A regional geography. Westview Press, Boulder.

Reid, Dwight
1975 Regional sampling. In Sampling in archaeology, edited by J.W. Mueller, pp. 45-60. University of Arizona Press, Tucson.

Rose, Robert K.
1986 Late prehistoric and protohistoric large mammal zoogeography of Virginia. In The Quaternary of Virginia - A symposium volume, edited by J.N. McDonald and S.O. Bird, pp. 79-88. Virginia Division of Mineral Resources Publication 75.

Scott, Robert N.
1890 The war of the rebellion: A compilation of the official records of the Union and Confederate armies, Series 1, Volume 29, Part 1-Reports. Government Printing Office, Washington,D.C.

Scruggs, Kay R.
1983 Site location and predictability in the Ridge and Valley portion of the Jefferson National Forest, Blacksburg and New Castle Ranger Districts. In Upland Archeology in the east: A Symposium, organized by C.R. Geier, M.B. Barber, and G.A. Tolley, pp. 250-270. United States Forest Service, Southern Region, Cultural Resources Report No. 2.

Sirkin, L.A.
1977 Late Pleistocene vegetation and environment in the Middle Atlantic Region. In Amerinds and their paleoenvironments in northeastern North America, edited by W. Newman and B. Salwen, pp. 206-217. New York Academy of Sciences, New York.

Schlotterbeck, John T.

1980 Plantation and farm: Social and economic change in Orange and Greene counties, Virginia, 1776-1860. Ph.D. dissertation, Johns Hopkins University.

Smith, Bruce
1986 The archaeology of the Southeastern United States: From Dalton to de Soto, 10,500-500 B.P. Advances in World Archaeology 5: 1-92.

Soil Conservation Service
1982 General soil map, Craig County, Virginia. On file with Soil Conservation Service, Daleville, Virginia.

Strahler, Arthur N.
1975 Physical geography, fourth edition. John Wiley and Sons, Inc, New York.

Sweet, Palmer C. and Gerald P. Wilkes
1986 High-silica resources in Allegheny, Botetourt, Craig, and Roanoke counties, Virginia. Virginia Division of Mineral Resources, Publication 67. Charlottesville.

Thorndale, William and William Dollarhide
1987 Map guide to the U.S. Federal Censuses, 1790-1920. Geneological Publishing Company, Inc., Baltimore.

Tourtellotte, Perry, and Chris Egghart
n.d. Cultural resource inventory of Potts Mt. 1984 timber sales. Report prepared by the Jefferson National Forest, Roanoke, Virginia.

1983a Pine tree timber sale and thinning. Report prepared by the Jefferson National Forest, Roanoke, Virginia.

1983b Cultural resource inventory of New Castle District timber sales. Report prepared by the Jefferson National Forest, Roanoke, Virginia.

Turner, E. Randolph III
1983 The archaeological identification of chiefdoms in southwestern Virginia. In Upland archaeology in the east: A symposium, organized by C.R. Geier, M.B. Barber, and G.A. Tolley, pp. 271-283. United States Department of Agriculture,

Forest Service, Southern Region, Cultural Resources Report No. 2.

1988 Directing Virginia archaeological surveys towards the development of local preservation plans. In Archaeological survey in Virginia: Toward preservation planning, edited by J.M. Wittkofski and E.R. Turner, III, pp. 100-109. Virginia Department of Historic Resources, Survey Report Series, No. 1.

1989 Paleoindian settlement patterns and population distribution in Virginia. In Paleoindian Research in Virginia: A synthesis, edited by J.M. Wittkofski and T.R. Rinehart, pp. 71-94. Archeological Society of Virginia, Special Publication No. 19.

United States Census Bureau
1860 8th United States census, schedule 5: Products of industry during the year ending June 1, 1860. Government Printing Office, Washington, D.C.

United States Department of the Interior
1983 Archeology and historic preservation; Secretary of the Interior's standards and guidelines. Federal Register 48(190): 44716-44740.

Ward, H. Trawick, and R.P. Stephen Davis, Jr.
1989 The impact of old world diseases on the native inhabitants of the North Carolina piedmont. Paper presented at the 46th Annual meeting of the Southeastern Archaeological Conference, Tampa, Florida.

Waselkov, Gregory A.
1977 Prehistoric Dan River hunting strategies. M.A. Thesis, University of North Carolina, Chapel Hill.

1989 Seventeenth-century trade in the colonial southeast. Southeastern Archaeology 8(2): 117-133.

Watson, Thomas L.
1907 Mineral resources of Virginia. J.P. Bell and Company, Lynchburg, Virginia.

Watts, W. A.

1980 The late Quaternary vegetation history of the southeastern United States. Annual Review of Ecology and Systematics 11: 387-409.

Wendlund, Wayne M. and Reid A. Bryson
1974 Dating climatic episodes of the Holocene. Quaternary Research 4(1): 9-24.

Wittkofski, J. Mark
1988 The Virginia Division of Historic Landmarks survey and planning subgrant program: An archaeological overview. In Archaeological survey in Virginia: Towards preservation planning, edited by J.M. Wittkofski and E.R. Turner,III, pp. 1-12. Virginia Department of Historic Resources, Survey Report Series, No. 1.

Woodall, J. Ned
1981 Survey methodology: A different perspective from the Carolina Piedmont. Newsletter for the Southeastern Archaeological Conference 23: 6-9.

Woodward, Herbert P.
1932 Geology and mineral resources of the Roanoke area, Virginia. Virginia Geologic Survey, Bulletin 34. University of Virginia, Charlottesville.

Whyte, Thomas R.
1989 Faunal remains. In Archaeological investigations at the Bessemer Site (44BO26): A Late Woodland Period Dan River and Page component village on the upper James River, Virginia. Edited by T.R. Whyte and S.M. Thompson, pp. 214-243. James Madison University Archeological research Center. Submitted to the Virginia Department of Transportation.

Wright, Henry E.
1976 The dynamic nature of Holocene vegetation: A problem in paleoclimatology, biogeography, and stratigraphic nomenclature. Quaternary Research 6: 581-596.

Appendix 1

Locational information for sites recorded prior to the Craig County Reconnaissance.

Appendix 1. Locational information for sites recorded prior to the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist. to rank>3 drainage (meters)
44CG01	NC	Prehistoric	Terrace	1200	MPCP	20	5	20
44CG02	NC	Prehistoric	Terrace	1200	MPCP	80	5	80
44CG03	NC	Prehistoric	Terrace	1230	MPCP	20	6	20
44CG04	NC	Prehistoric	Terrace	1230	MPCP	30	6	30
44CG05	NC	Prehistoric	Terrace	1230	MPCP	30	6	30
44CG06	NC	Prehistoric	Terrace	1240	MPCP	80	6	80
44CG07	NC	E,L Archaic	Terrace	1240	MPCP	100	6	100
44CG08	NC	Prehistoric	Terrace	1600	JW	60	3	380
44CG09	NC	E,L Archaic	Floodplain	1580	JW	15	3	200
44CG10	PC	E-L Archaic, L Woodland	Terrace	1580	MPCP	10	2	200
44CG11	PC	M-L Archaic	Terrace	1570	MPCP	20	2	40
44CG12	C	Prehistoric	Terrace	1340	MPCP	0	1	120
44CG13	C	Prehistoric	Terrace	1340	MPCP	60	2	120
44CG14	PC	Prehistoric	Terrace	1600	MPCP	40	2	160
44CG15	PC	Prehistoric	Terrace	1580	MPCP	20	2	240
44CG16	PC	M-L Woodland	Floodplain	1540	MPCP	15	5	15
44CG17	PC	M-L Woodland	Floodplain	1540	MPCP	10	5	10
44CG18	PC	L Archaic	Terrace	1580	MPCP	10	2	340

Appendix 1. Locational information for sites recorded prior to the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist. to rank>3 drainage (meters)
44CG19	PC	E,L Archaic	Terrace	1560	MPCP	10	3	30
44CG20	PC	L Archaic	Terrace	1560	JW	90	3	620
44CG21	PB	Prehistoric	Terrace	1880	DLLJ	20	2	240
44CG22	PB	Prehistoric	Terrace	1880	DLLJ	20	1	220
44CG23	PB	L Archaic	Terrrace	1880	MPCP	15	2	40
44CG24	PB	L Archaic	Terrace	1960	MPCP	15	1	20
44CG25	PB	Prehistoric	Terrace	1880	MPCP	50	5	50
44CG26	PB/PC	Prehistoric	Terrace	1840	MPCP	30	5	30
44CG27	PC	M-L Woodland	Floodplain	1820	MPCP	15	5	15
44CG28	PC	Prehistoric	Floodplain	1760	MPCP	40	5	40
44CG29	L	Prehistoric	Terrace	1360	MPCP	10	5	10
44CG30	-	-	-	-	-	-	-	-
44CG31	PC	Prehistoric	Floodplain	2680	DLW	20	1	3800
44CG32	PC	Prehistoric	Floodplain	1730	MPCP	60	1	160
44CG33	PC	Prehistoric	Terrace	1730	MPCP	60	5	60
44CG34	PC	Prehistoric	Terrace	1730	MPCP	10	1	40
44CG35	PC	Prehistoric	Ridge bench	1770	MPCP	30	1	80
44CG36	NC	Prehistoric	Terrace	1270	MPCP	160	3	260

Appendix 1. Locational information for sites recorded prior to the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist. to rank>3 drainage (meters)
44CG37	C	E Woodland	Ridge top	1360	MPCP	15	1	210
44CG38	NP	L Archaic, E Woodland	Ridge bench	2200	WB	120	2	420
44CG39	NP	Prehistoric	Ridge bench	2060	WB	10	2	920
44CG40	PB	Prehistoric	Ridge top	3450	DLLJ	30	1	1850
44CG41	PB	Historic	Ridge bench	3150	DLLJ	0	1	1780
44CG42	NC	Prehistoric	Floodplain	1400	DLLJ	20	2	2300
44CG43	NC	Prehistoric	Terrace	1200	MPCP	20	3	480
44CG44	NC	Historic	Terrace	1220	MPCP	10	3	570
44CG45	NC	Historic	Terrace	1240	MPCP	15	3	750
44CG46	NC	E 20th c.	Floodplain	1220	MPCP	0	3	960
44CG47	NC	L Woodland	Terrace	1200	MPCP	0	3	160
44CG48	NC	L Archaic	Terrace	1230	MPCP	10	3	110
44CG49	NC	L Archaic, L Woodland	Terrace	1200	MPCP	10	3	80
44CG50	NC	Prehistoric	Terrace	1250	MPCP	10	3	160
44CG51	C	Prehistoric	Terrace	1480	MPCP	10	3	3500
44CG52	PB	Prehistoric	Ridge top	3520	DLLJ	20	1	1880
44CG53	O	Prehistoric	Terrace	1240	MPCP	75	1	3600
44CG54	C	Prehistoric	Ridge bench	1540	DLW	20	1	1780

Appendix 1. Locational information for sites recorded prior to the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist. to rank>3 drainage (meters)
44CG55	NC	Prehistoric	Terrace	1280	MPCP	40	4	40
44CG56	NC	Historic	Terrace	1260	MPCP	20	1	260
44CG57	NC	L Archaic	Terrace	1160	MPCP	140	6	140
44CG58	NC	Prehistoric	Terrace	1160	MPCP	160	6	160
44CG59	NC	Prehistoric	Terrace	1160	MPCP	120	6	120
44CG60*	C	Historic	Saddle	1360	MPCP	60	2	260
44CG61	C	M-L Archaic	Saddle	1360	MPCP	50	2	340
44CG62	C	Prehistoric	Terrace	1300	MPCP	60	2	120
44CG63	C	Prehistoric	Terrace	1300	MPCP	30	5	30
44CG64	NC	L Archaic	Ridge bench	1280	MPCP	140	4	140
44CG65	NC	L Archaic	Ridge bench	1260	MPCP	90	4	90
44CG66	NC	Prehistoric	Terrace	1240	MPCP	40	4	40
44CG67	PC	Historic	Ridge bench	3200	DLLJ	18	1	2200

Appendix 1. Locational information for sites recorded prior to the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist. to rank>3 drainage (meters)
44CG68	NC	Prehistoric	Terrace	1220	MPCP	30	4	30
44CG69	NC	Prehistoric	Terrace	1180	MPCP	30	6	30
44CG70	NC	Prehistoric	Terrace	1160	MPCP	180	6	180
44CG71	NC	Prehistoric	Terrace	1240	MPCP	20	6	20
44CG72	NC	Prehistoric	Terrace	1230	MPCP	20	6	20
44CG73	PC	Prehistoric	Terrace	1590	MPCP	30	5	30
44CG74	PC	Prehistoric	Terrace	1580	MPCP	60	5	60
44CG75	PC	Prehistoric	Terrace	1580	MPCP	20	5	20
44CG76	NC	L Archaic, M-L Woodland	Terrace	1160	MPCP	20	6	20
44CG77	NC	Prehistoric	Rockshelter	1280	MPCP	80	1	200
44CG78*	NC	Historic	Ridge top	1280	MPCP	200	1	250
44CG79*	NC	Historic	Terrace	1160	MPCP	180	6	180
44CG80	C	L Archaic	Terrace	1460	DLW	80	3	3260
44CG81	NC	Prehistoric	Terrace	1160	MPCP	20	6	20
44CG117	L	Prehistoric	Ridge top	2080	DLLJ	60	1	1120
44CG171	NC	L 19th-E 20th	Ridge slope, Floodplain	1440	DLLJ	0	2	2020

Appendix 2.

Location information for sites recorded during the Craig County reconnaissance survey.

Appendix 2. Locational information for sites recorded during the Craig County Reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist to Rank>3 Drainage (meters)
44CG82	C	Prehistoric, M 19th-20th	Terrace	1330	MPCP	90	5	90
44CG83	C	Prehistoric	Terrace	1310	MPCP	28	5	28
44CG84	NC	L Archaic	Terrace	1300	MPCP	50	5	50
44CG85	NC	Prehistoric	Terrace	1300	MPCP	0	1	80
44CG86	NC	E-M Woodland	Terrace	1300	MPCP	0	1	80
44CG87	PC	Historic	Floodplain	1620	MPCP	0	1	2060
44CG88	PC	Prehistoric	Terrace	1560	MPCP	30	3	220
44CG89	L	M-L Archaic	Terrace	1480	MPCP	13	2	120
44CG90	MM	M-L Archaic	Terrace	1590	MPCP	40	5	40
44CG91	PC	Prehistoric	Ridge top	1640	DLW	40	1	280
44CG92	PC	Prehistoric	Ridge bench	2000	DLW	10	1	2020
44CG93	PC	Prehistoric	Ridge bench	1920	DLW	0	1	2080
44CG94	PC	Prehistoric	Terrace	1560	MPCP	80	5	80
44CG95	PC	Prehistoric	Terrace	1630	MPCP	30	3	300
44CG96	L	Historic	Ridge bench	2600	FLCH	0	1	1050
44CG97	CS	E-M 19th c.	Ridge bench	2540	DBH	0	1	1130
44CG98	CS	Historic	Ridge bench	2710	DBH	30	1	1630
44CG99	CS	Historic	Ridge bench	2480	FLCH	60	1	940

Appendix 2. Locational information for sites recorded during the Craig County Reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist to Rank>3 Drainage (meters)
44CG100*	CS	L 19th-E 20th c.	Ridge bench	2530	FLCH	120	2	180
44CG101*	CS	L 19th-M 20th c.	Ridge bench	2560	FLCH	100	1	460
44CG102*	CS	19th-e 20th c.	Ridge top	2380	FLCH	70	1	340
44CG103	CS	E-L Archaic, M-L Woodland, M 19th c.	Terrace	2280	FLCH	40	4	40
44CG104	CS	E-L Archaic, M-L Woodland	Floodplain	2270	FLCH	0	4	0
44CG105	CS	Prehistoric	Ridge bench	2430	FLCH	0	1	1550
44CG106	CS	M-L 19th c.	Ridge bench	2450	FLCH	0	1	1440
44CG107	CS	E,L Archaic	Floodplain	2250	FLCH	0	4	0
44CG108	PC	Prehistoric	Ridge top	1600	DLLJ	30	1	180
44CG109	CS	E Archaic, M-L 19th c.	Ridge bench	2380	FLCH	40	1	1360
44CG110	CS	M-L Woodland	Ridge bench	2480	FLCH	100	1	1130
44CG111	CS	E 19th-E 20th	Ridge top	2560	FLCH	100	1	1240
44CG112	CS	Prehistoric	Ridge bench	2550	DBH	120	1	1580
44CG113	CS	M 19th-E 20th c.	Ridge bench	2360	FLCH	20	1	1000
44CG114*	CS	19th-E 20th c.	Ridge bench	2440	FLCH	120	1	1260
44CG115	CS	L 19th-M 20th c.	Ridge bench	2410	FLCH	20	1	1460
44CG116	CS	Historic	Ridge bench	2370	FLCH	50	1	970

Appendix 2. Locational information for sites recorded during the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist to Rank>3 Drainage (meters)
44CG118	W	L Archaic, M 19th c.	Terrace	1810	MPCP	140	3	280
44CG119	W	M-L Woodland	Floodplain	1800	MPCP	20	3	480
44CG120	W	E Archaic	Terrace	1820	MPCP	50	1	580
44CG121	C	Prehistoric, Historic	Terrace	1320	MPCP	0	1	80
44CG122	PC	E Archaic	Terrace	1580	MPCP	0	1	140
44CG123	C	Prehistoric	Ridge top	1340	MPCP	60	1	210
44CG124	C	Prehistoric	Ridge top	1340	MPCP	0	1	150
44CG125	C	Prehistoric	Ridge top	1350	MPCP	0	1	120
44CG126	C	Prehistoric	Terrace	1330	MPCP	0	5	0
44CG127	C	Prehistoric	Ridge top	1400	MPCP	40	1	60
44CG128	CS	Prehistoric	Terrace	2280	FLCH	0	4	0
44CG129	CS	Prehistoric	Terrace	2300	FLCH	100	1	140
44CG130	CS	M-L Archaic	Terrace	2300	FLCH	90	4	90
44CG131	CS	Prehistoric	Floodplain	2290	FLCH	0	1	50
44CG132	CS	Historic	Ridge bench	2380	FLCH	25	1	300
44CG133	CS	Historic	Ridge bench	2290	FLCH	35	1	490
44CG134	CS	M-L Archaic	Ridge bench	2380	FLCH	90	1	940

Appendix 2. Locational information for sites recorded during the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist to Rank>3 Drainage (meters)
44CG135	CS	E 19th-M 20th c.	Ridge bench	2270	FLCH	30	1	60
44CG136	NC	E-M 19th c.	Terrace	1260	MPCP	40	6	40
44CG137	CS	M-L 19th c.	Floodplain	2390	FLCH	0	4	0
44CG138	C	19th c.	Floodplain	1320	FLCH	0	3	20
44CG139	C	19th c.	Floodplain	2280	FLCH	0	4	0
44CG140	PC	M-L Woodland	Rockshelter	1480	DLLJ	35	2	720
44CG141	PC	M 19th c.	Floodplain	1360	DLLJ	20	5	20
44CG142	PC	Historic	Terrace	1380	DLLJ	40	5	40
44CG143	CS	E-M 19th c.	Terrace	2280	FLCH	70	4	70
44CG144	L	E-M 19th c.	Floodplain	2090	FLCH	0	3	2300
44CH145	PC	L 19th-E 20th c.	Floodplain	1360	DLLJ	0	5	0
44CG146*	NC	E 19th-E 20th c.	Ridge top	1250	MPCP	180	1	420
44CG147*	NC	E 19th-	Ridge top	1240	MPCP	240	1	540
44CG148	O	L Archaic, L Woodland, M 19th-20th c.	Terrace	1150	MPCP	50	1	220
44CG149	O	Prehistoric, E-M 20th c.	Terrace	1160	MPCP	20	1	140
44CG150	O	L Archaic, M-L Woodland, M-L 19th c.	Floodplain	1150	MPCP	15	6	15
44CG151	O	Prehistoric	Floodplain	1160	MPCP	20	6	20

Appendix 2. Locational information for sites recorded during the Craig County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist to Rank>3 Drainage (meters)
44CG152	NC	Prehistoric	Terrace	1200	MPCP	0	1	180
44CG153	C	E Archaic, L Archaic	Terrace	1310	MPCP	60	5	60
44CG154	C	Prehistoric	Terrace	1310	MPCP	70	5	70
44CG155	CS	M-L 19th c.	Ridge bench	2410	FLCH	20	2	180
44CG156	CS	M Archaic	Ridge bench	2380	FLCH	60	1	1220
44CG157	CS	E-M 19th c.	Ridge bench	2460	FLCH	0	1	500
44CG158	PC	M-L 19th c.	Terrace	1620	MPCP	20	3	160
44CG159	PC	19th c.	Terrace	1600	MPCP	30	3	180
44CG160	PC	Prehistoric	Terrace	1620	MPCP	40	3	280
44CG161	PC	M-L Archaic	Terrace	1600	MPCP	80	1	140
44CG162	CS	E-L Archaic	Ridge bench	2520	FLCH	80	1	1270
44CG163	CS	L Archaic	Ridge bench	2480	FLCH	0	1	1120
44CG164	C	Prehistoric	Floodplain	1260	MPCP	30	5	30
44CG165	C	Prehistoric	Terrace	1280	MPCP	130	5	130
44CG166	CS	L 19th- M 20th c.	Ridge bench	2290	FLCH	80	4	80
44CG167	CS	M-L Archaic	Ridge bench	2270	FLCH	60	4	60
44CG168	L	M 19th- E 20th c.	Ridge top	2560	FLCH	60	1	3880
44CG169	L	E-M 19th c.	Terrace	1440	MPCP	0	2	120

Key to Appendix 2.

1. Site Number
   * Historic period cemetery (not included in analysis)

2. Quadrangle Map:
   C Catawba
   CS Craig Springs
   L Looney
   NC New Castle
   MM McDonalds Mill
   O Oriskany
   PC Potts Creek
   W Waiteville

3. Temporal affiliation:
   E Early
   M Mid/Middle
   L Late
   c. century

4. Soil Association:
   DBH Dandridge-Berks-Hayter
   DLLJ Dekalb-Lily-Lehew-Jefferson
   DLW Dekalb-Lehew-Weikert
   FLCH Frederick-Lodi-Clarksville-Hayter
   MPCP Monongahela-Purdy-Chavies-Popes

Appendix 2. Locational information for sites recorded during the Criag County reconnaissance survey.

Site Number	Quadrangle Map	Temporal Affiliation	Topographic Setting	Elevation (feet)	Soil Association	Dist. to nearest drainage (meters)	Rank of nearest drainage (meters)	Dist to Rank>3 Drainage (meters)
22-26	CS	L 19th-E 20th c.	Ridge bench	2360	FLCH	20	1	360
22-27	included with 44CG148							
22-28	included with 44CG149							
22-29	NC	E 19th c.	Terrace	1160	MPCP	50	6	50
22-30	included with 44CG168							
22-31	not included in analysis							
22-32	not included in analysis							