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ASSESSING PREHISTORIC CHRONOLOGY IN PIEDMONT CONTEXTS

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ABSTRACT

The chronology of six prehistoric archaeological sites in piedmont contexts of northern Virginia are evaluated. Timing of site occupation and regional chronology is assessed on the basis of commonly accepted projectile point styles and radiocarbon dates. The relationship between projectile points and absolute dates is examined. Three projectile point types, the Lobate, the Piscataway, and the Woodland Site-Notched, are evaluated with regard to their possible temporal contexts. Methodological issues and problems relating to the presence and quality of chronological data are explored.

INTRODUCTION

A basic aim of archaeologists is to determine the temporal span of human occupation of archaeological sites and regions. Chronological inferences are usually based on the presence of certain temporally diagnostic artifacts or data obtained from absolute dating. In ideal circumstances, archaeological sites contain both of these sources of data in well-preserved, stratified contexts. More often, however, archaeological sites yield a limited amount of temporal data, sometimes contained in poor depositional settings (e.g., plow zones, deflated contexts). Because this is often the case, archaeologists working in such settings must retrieve as much chronological information from particular sites as possible so that periods of occupation may be assessed and temporal patterns established.

Prehistoric archaeological sites in the Piedmont of northern Virginia are usually characterized by light density scatters of chipped stone, few ceramics, and poor preservation of organic material. Typically the chipped stone assemblages from these sites consist of debitage and low frequencies of formal tools. The primary means of dating sites in the region is through the recovery of stylistic markers such as projectile points. Various characteristic and recurring point forms have been temporally placed through radiocarbon dating and are used as the basis for chronologically indexed typologies. Existing projectile point typologies for Virginia (MacCord and Hranicky, 1979; Gleach, 1987; Hranicky and Painter, 1989; Hranicky, 1991) are based mainly on data from surrounding areas, including the Northeast (Ritchie, 1971) and neighboring states (Coe, 1964; Broyles, 1971). While more detailed and site-specific chronological studies of projectile points are generally desired, these regional data are sometimes the only source for dating major periods of site occupation.

Radiocarbon samples are increasingly being collected from sites throughout the Middle Atlantic, yet relatively few absolute dates have been obtained from sites in the northern Virginia Piedmont. Most of the sites in northern Virginia are surface occurrences, and chronological information has been derived primarily from point typologies (Johnson, 1983a, 1986; Rust, 1983, 1986). In recent years, however, archaeologists have begun to obtain radiocarbon dates from buried contexts, improving on the ability to examine periods of site occupation and test the correspondence between material remains and chronology (Rust et al., 1983; Slattery and Woodward, 1992; Moore, 1994). However, although there have been some recent improvements in the ability to date sites, excavation at stratified sites is still relatively rare, and few absolute dates have been retrieved.

The aim of this article is to discuss chronological data obtained from six sites situated in the Piedmont region of northern Virginia. The sites were investigated during a recent data recovery program conducted within a proposed transmission corridor in Loudoun, Prince William, and Fauquier counties (Petraglia et al., 1993). The investigations along the corridor provided the opportunity to gather systematic chronological information from a sample of upland locales which included areas of both surface and buried deposition. Two basic aims of the study were to establish the temporal ranges of site occupations through the analysis of characteristic projectile point forms and radiocarbon dates and to examine the degree of correlation between the two data sets.

A brief summary of the depositional and technological characteristics of the six sites is first presented. The projectile points recovered from the sites are then described, followed by a presentation of the radiocarbon data. The combined chronological data are assessed, and the implications for occupation of the individual sites and of the region are addressed.

THE ARCHAEOLOGICAL SITES

The six sites occur along drainages which flow generally eastward toward the upper end of the Potomac River estuary (Figure 1). Site types included quarry/workshop locales, short-term procurement sites, and small base camps. The sites were located in exposed, plow zone contexts as well as in buried contexts. Based on initial surveys, site sizes varied greatly, ranging from 4,000 to 17,000 m^2. While initial surveys documented the entire horizontal extent of each site, excavations were primarily confined to the proposed impact corridor. Excavations within the corridor focused on areas with highest artifact densities and best subsurface integrity, allowing the retrieval of the maximum number of artifacts from intact deposits. Generally, the sites yielded a variety of data indicating intermittent occupation spanning temporal ranges from the Early Archaic through the Late Woodland, a period spanning ca. 10,000 years (Petraglia, et al., 1993). For present purposes, the Early Archaic is defined as 8000-6300 BC; Middle Archaic 6300-3000 BC; Late Archaic 3000-1800 BC; Transitional 1800-1200 BC; Early Woodland 1200-500 BC; Middle Woodland 500 BC-AD 900; Late Woodland AD 900-1600 (Mouer, 1990; Reinhart and Hodges, 1990, 1991, 1992).

44FQ107

Site 44FQ107 lay on a high, flat ridge overlooking the floodplain of Cedar Run. The site covered an area of 17,319 m^2, from which a total of 3,700 chipped stone artifacts was recovered. The majority of the artifacts were situated in a plowed field with little or no sub-plow zone deposition. Although there were spatially distinct distributions present in the plow zone, which may have been the result of discrete episodes of prehistoric activity, no features were identified, nor could specific activity areas be positively distinguished.

44FQ113

The prehistoric assemblages from 44FQ113 were located on a low ridge bordering a small tributary of Cedar Run. The site covered an area of 4,452 m^2, and 900 chipped stone artifacts were recovered. The ground on which the assemblages occurred lay completely within an active agricultural field, with no sub-plow zone deposition in evidence. No features or clear horizontal patterns attributable to specific prehistoric activity were identified.

44PW546

Site 44PW546 was located on a terrace along Broad Run, and measured 12,710 m^2. A total of 900 chipped stone artifacts were recovered. The assemblages

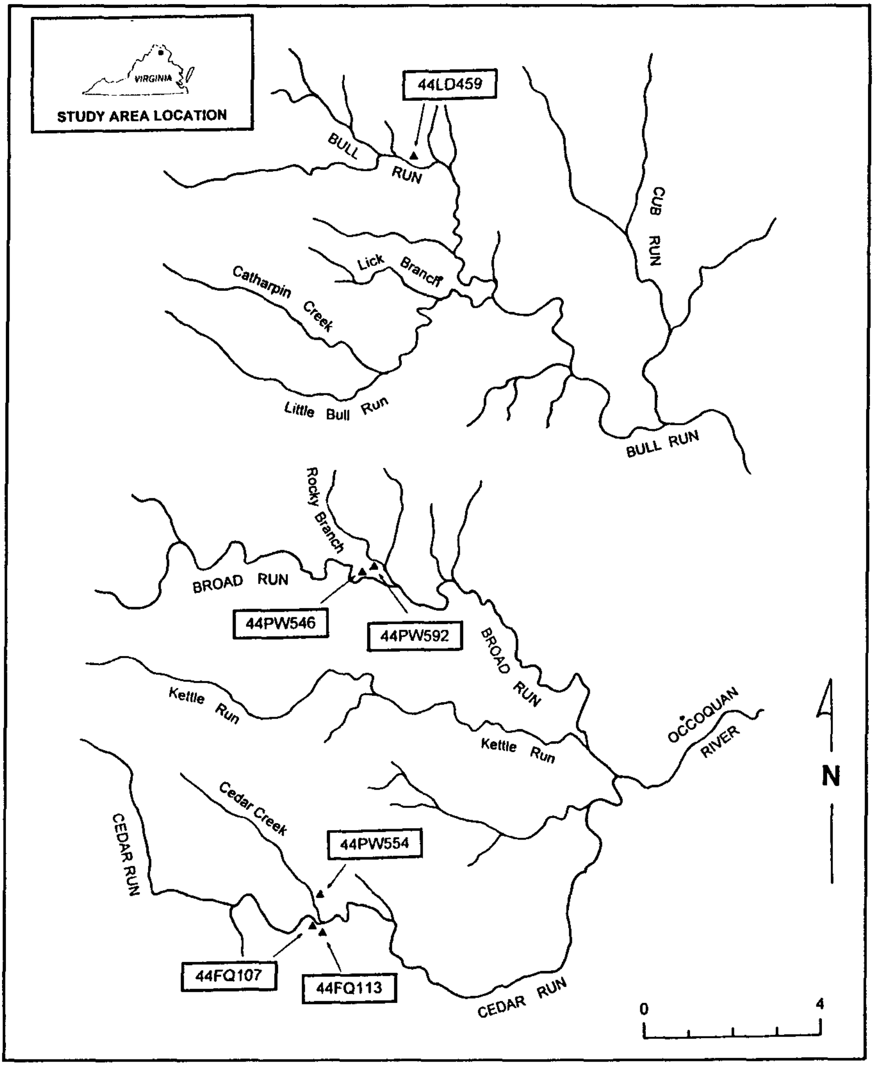


Figure 1. Location of sites in the current study.

were contained in stratified alluvial deposits to a maximum depth of 1 m. Eight features were identified, four of which provided sufficient charcoal samples for radiocarbon dating. The dated features included a rock cluster (Feature 2) at 30 cm, an oval-shaped pit (Feature 4) at a depth of 60 cm, a charcoal concentration (Feature 8) at a depth of 80 cm, and a banked hearth (Feature 6) at 1 m.

44PW554

The prehistoric assemblages at 44PW554 were located on a terrace above Cedar Creek, a small, perennial drainage flowing into Cedar Run. The site covered an area of 10,146 m^2, and yielded a total of 5,900 chipped stone artifacts. The assemblages were contained within deposits ranging to depths of 1 m. The uppermost 30 cm had been plowed. Although postdepositional processes blurred stratigraphic breaks below the plow zone, some vertical separation of Archaic period components was evidenced. Portions of two hearth-like features were preserved within the Archaic levels, but no organic remains were present.

44PW592

Site 44PW592 was situated along Rocky Branch, a perennial tributary of Broad Run. The site, which measured 4,015 m^2, yielded 2,400 chipped stone artifacts. The artifacts were recovered from shallow, gravelly, and organically poor deposits, approximately 20 cm in thickness and lying 10 cm below grade. A radiocarbon sample was obtained from a pit feature (Feature 1) beginning at 20 cm in depth. Two additional samples were taken from scattered charcoal in artifact bearing strata (Strata B and C) at depths of 20 and 30 cm, respectively.

44LD459

Site 44LD459 was situated on a broad, low terrace along Bull Run. The site covered an area of 6,724 m^2. Two widely separated activity areas were documented (Areas A and C). In total, 600 chipped stone artifacts were recovered. Artifact-bearing deposits were mainly concentrated in a 20-30 cm thick zone beginning 10 cm below grade. Four radiocarbon samples were obtained from the artifact-bearing strata (Strata B and C) between 25 and 35 cm in depth, and one from a pit feature (Feature 4), which began 5-10 cm below ground surface.

PROJECTILE POINTS

The projectile points from the six sites were classified on the basis of conventional morphological typologies. Typing was based on both stylistic criteria and comparative dimensional attributes. A total of 174 temporally diagnostic projectile points was recovered from the six sites. All sub-periods of the Archaic and Woodland periods were represented (Table 1). Archaic points comprised 60 percent of the total assemblage, the largest percentage of those were represented by Late Archaic types. Evidence for Woodland occupation of the sites was substantial. The majority of the Woodland forms were types which overlap the Early and Middle Woodland, with fewer points less clearly identifiable as exclusively from the either sub-period. Although less frequent, Late Woodland material was present at several locales. Based on projectile point occurrence alone,

Table 1. Projectile Point Types Recovered at the Six Sites in the Study Listed by Occurrence at Individual Sites

	44FQ107	44FQ113	44PW546	44PW554	44PW592	44LD459	Totals
Early Archaic:							
Palmer	3	1	—	1	—	—	5
Kirk	—	—	—	1	—	1	2
St. Albans	2	—	—	—	—	—	2
LeCroy	—	—	—	1	—	—	1
Kanawha	1	—	1	—	—	—	2
							12
Middle Archaic:							
Lobate	10	2	—	14	1	—	27
Morrow Mtn II	—	—	—	1	1	—	2
							29
Late Archaic:							
Halifax	7	5	—	7	—	—	19
Lamoka	—	–	—	2	—	—	2
Savannah R.	2	2	—	13	—	—	17
Holmes	5	2	—	8	—	1	16
Stemmed	—	—	—	4	—	—	4
							58
Transitional:							
Perkiomen	—	—	—	1	—	1	2
Fishtail	—	—	—	3	—	—	3
							5
Early Woodland:							
Calvert	1	1	—	5	—	—	7
							7
Early/Middle Woodland:							
Piscataway	2	—	1	12	—	3	18
Rossville	—	—	—	4	—	—	4
Side-Notched	3	6	—	16	—	—	25
							47
Middle Woodland:							
Jacks Reef	3	—	—	—	—	—	3
							3
Late Woodland:							
Levanna	—	—	3	—	—	1	4
Madison	—	—	1	—	—	—	1
Clarksville	2	—	1	—	—	5	8
							13
Totals	41	19	7	93	2	12	174

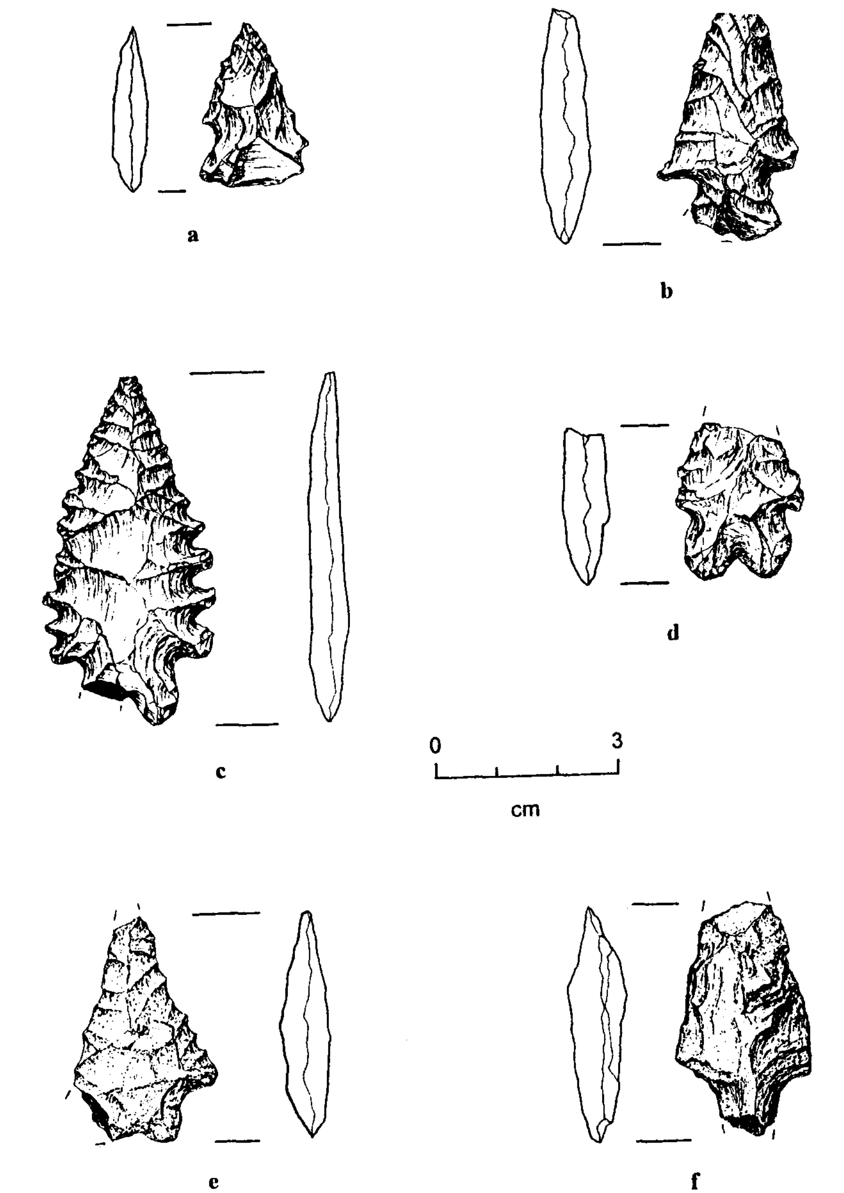
settlement patterns represented at the sites conformed to general settlement models proposed throughout the Virginia Piedmont (Klein and Klatka, 1991).

Table 2 provides the breakdown of point types by individual site. Representative examples of the most frequently occurring types are illustrated in Figures 2, 3, and 4. The most obvious difference in the intersite distribution of point types is the high percentage of Archaic period, and particularly Late Archaic, material at 44FQ107, 44FQ113 and 44PW554, located in the Cedar Run watershed, in the extreme southern portion of the study area. In contrast, Late Woodland material is most prevalent at 44PW546 and 44LD459, north of the Cedar Run sites. These findings, again based on projectile point occurrence alone, corresponded with regional data suggesting that, as the Woodland period progressed, site density increased on floodplains and low terraces along major Piedmont streams (Klein and Klatka, 1991).

Since most of the sites were not deeply stratified, vertical trends in projectile point type frequencies by depth could not be established. Site 44PW554 provided the only situation where a large number of projectile points was recovered in relatively undisturbed stratigraphic context. Although plowing had redistributed artifacts throughout the uppermost levels, evidence indicated a general trend in the sequence of projectile point types. The lowest levels at 44PW554 contained Early to Middle Archaic types, including a Palmer point, a Kirk Corner Notched point, and a large stemmed bifurcate typed as LeCroy (Table 2). The middle levels of the site contained material which was predominately Late Archaic in affiliation. Most of the Woodland points from the site were recovered from the plow zone levels, though the plow zone in fact contained a mixture of Archaic and Woodland material. Site 44PW554 provided the widest range of chronological data based on diagnostic artifacts. The site was deep, and stratigraphy remained relatively intact, which helped refine relationships between certain point types. But, typical of piedmont sites in general, there were no absolute chronological data available from the site.

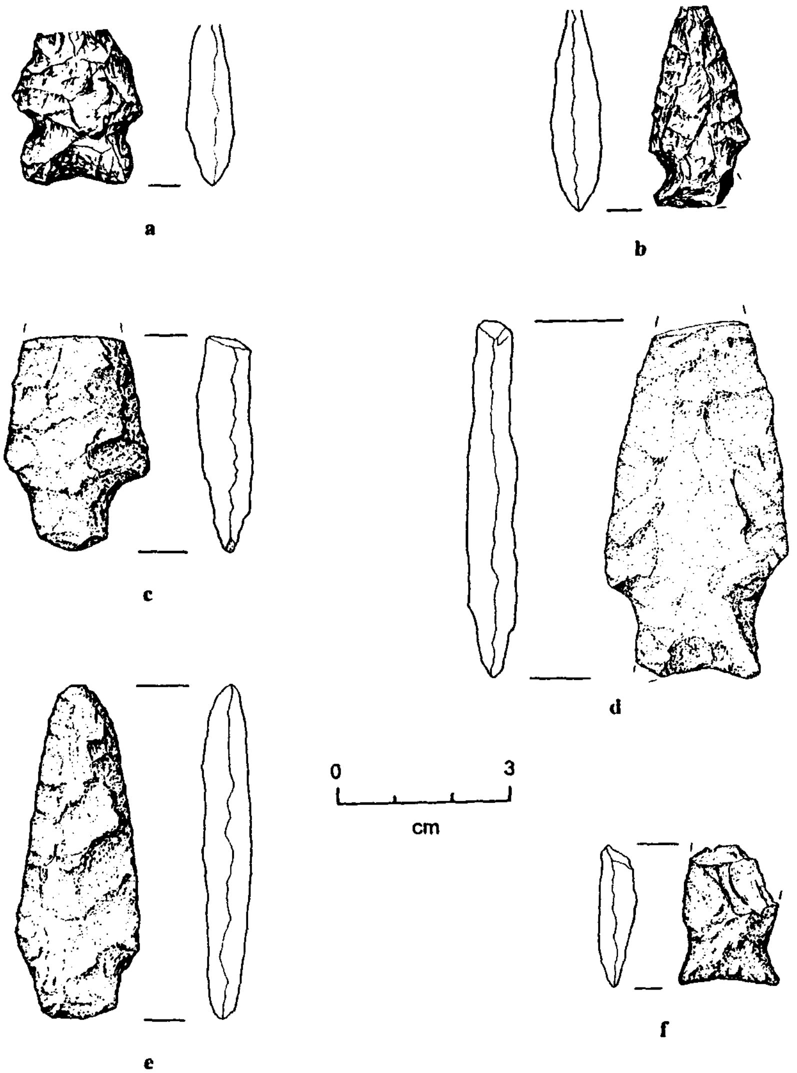
Table 2. Projectile Point Occurrence by Individual Site

Period	44FQ107	44FQ113	44PW546	44PW554	44PW592	44LD459
Early Archaic	6 (15%)	1 (5%)	1 (14%)	3 (3%)	—	1 (8%)
Middle Archaic	10 (24%)	2 (11%)	—	15 (16%)	2 (100%)	—
Late Archaic	14 (34%)	9 (47%)	—	34 (37%)	—	1 (8%)
Transitional	—	—	—	4 (4%)	—	1 (8%)
Early Woodland	1 (3%)	1 (5%)	—	5 (5%)	—	—
E/M Woodland	5 (12%)	6 (32%)	1 (14%)	32 (35%)	—	3 (25%)
Middle Woodland	3 (7%)	—	—	—	—	—
Late Woodland	2 (5%)	—	5 (72%)	—	—	6 (50%)
Total	41	19	7	93	2	12



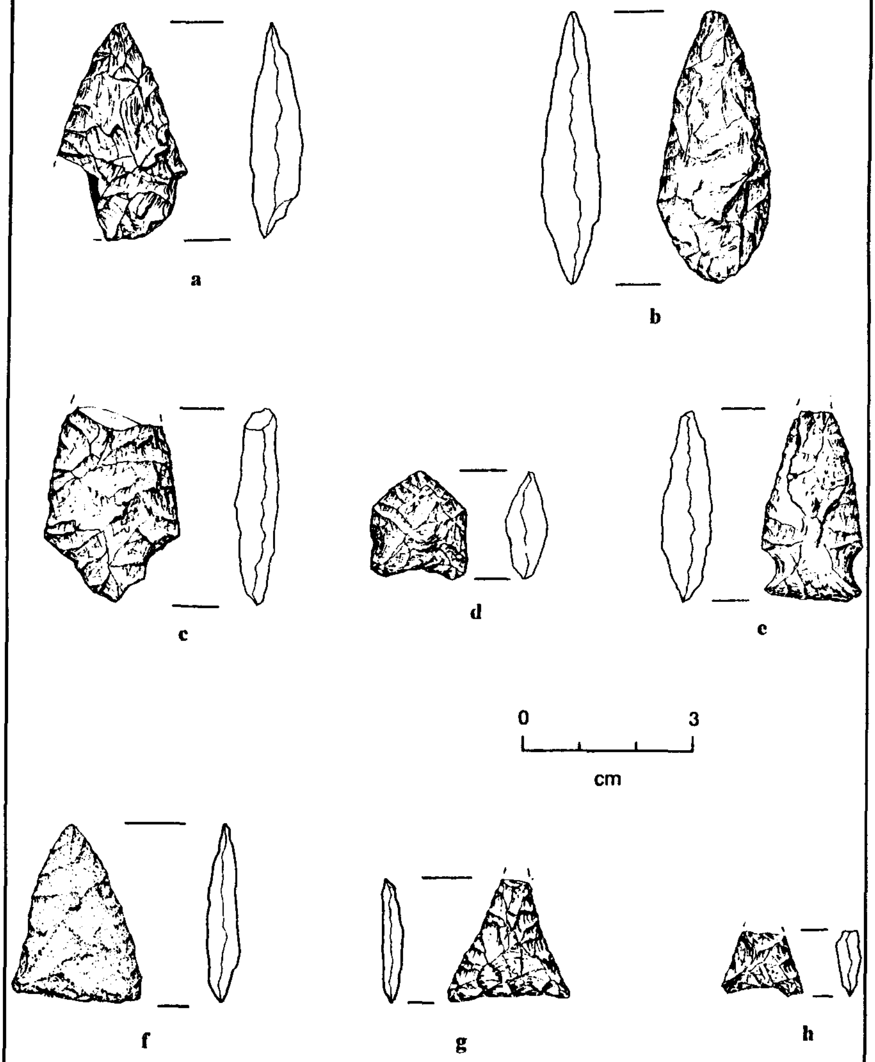
a) Palmer (chalcedony); b) Kirk Corner-Notched (chert); c) LeCroy (jasper);
d) St. Albans (quartz); e) Kanawha Stemmed (quartzite); f) Morrow Mountain II (rhyolite).

Figure 2. Early and Middle Archaic projectile points.



a) Lobate (quartz); b) Halifax (quartz); c) Lamoka (quartzite); d) Savannah River (hornfels); e) Holmes (hornfels); f) Fishtail (hornfels).

Figure 3. Middle, Archaic, Late Archaic, and Transitional projectile points.



a) Calvert (quartz); b) Piscataway (quartz); c) Rossville (quartz); d) Jack's Reef Pentagonal (quartz); e) Woodland Side-Notched (quartz); f) Madison (quartzite); g) Levanna (chert); h) Clarksville (quartz).

Figure 4. Woodland projectile points.

SPECIFIC POINT TYPES

The chronological placement of three particular point types which occurred frequently at the sites in this study is not clearly understood. Further consideration of their temporal implications is worth examining in some detail, since the assumptions made about them bear on relative site chronologies. The three types include the Lobate, the Piscataway, and a point referred to as a generalized Woodland Side-Notched point.

Lobate

Among the most common points recovered from the sites in this study was the Lobate (Table 1, Figure 3a). The Lobate shares morphological similarities with several bifurcate projectile points, particularly with St. Albans and MacCorkle. The defining characteristics of the Lobate type are a wide and shallow basal concavity and thick, rounded corner tangs (Johnson, 1983b; Moore, 1990, 1994). There are, at present, no recorded radiocarbon dates associated with the Lobate point, and thus, its temporal placement is relative. In fact, the only chronological data presently available from the region consist of reports of stratigraphic placement at a suite of sites in Fairfax County (Moore, 1990, 1994). At these sites, Lobate points were found in association with Morrow Mountain, Halifax, Guilford, and bifurcated types. Consequently, Lobates are presumed to span the entire Middle Archaic period. Chronological data from the present study were not conclusive, since most of the Lobates were recovered from disturbed contexts. One example was recovered from the deepest artifact bearing levels at 44PW554, the same depth as the single LeCroy from the site. The level was presumed to represent Early to Middle Archaic occupation.

Piscataway

Piscataway points were recovered from four of the six sites (Table 1, Figure 4b). While these small, contracting stem points constitute a recognizable and accepted morphological type in the Middle Atlantic, their chronological affiliation is uncertain due to a lack of associated absolute dates. The points are usually attributed to the Early or Middle Woodland sub-periods (Johnson, 1985; Mouer, 1990; McLearen, 1991; Stevens and Klein, 1993), although there have been suggestions that the type may have originated in the latter portion of the Late Archaic (Handsman and McNett, 1974; Steponaitis, 1983; Reeve, 1992). At 44PW554, Piscataway points were recovered from both the plow-disturbed layer as well as from sub-plow zone levels. The sub-plow zone levels were determined to be Late Archaic in date, based on projectile point associations. While stratigraphic integrity was not absolute at the site, the vertical position suggested that the Piscataway points in the lower deposit may have been a relatively early occurrence of the type.

Woodland Side-Notched

The majority of the Woodland Side-Notched forms in the study were recovered from 44PW554 (Table 1, Figure 4e). The points varied in dimensions, and also exhibited a degree of variability in base morphology. These points are common in sites in northern Virginia, but few archaeologists have suggested a strict temporal assignment due mainly to their recovery in deflated deposits. The Woodland Side-Notched forms from the present investigation were generally small, with relatively straight to slightly convex blade edges, and straight to convex bases, with no grinding of the hafting element apparent. The specimens were differentiated from the earlier, Halifax type based on smaller size, more varied blade morphology, and the absence of grinding on the hafting element. Precise chronological assignment of the type is impractical without absolute dates, although an Early to Middle Woodland attribution appears most plausible based on the stratigraphic position of similar points at several sites in Fairfax County (Johnson, 1990; Moore, 1990, 1992) and in Prince George's County, Maryland (Knepper and Rutherford, 1991). Besides Halifax and the stylistically and chronologically similar Brewerton, the only other commonly recognized side-notched point type in the Middle Atlantic is referred to as Vernon. The chronological affiliation of this type is also debated. While no Woodland Side-Notched points were recovered from stratified contexts, the majority recovered at 44PW554 were from the plow zone levels which generally overlay Late Archaic deposits.

As distinct stylistic forms, the Lobate and Woodland Side-Notched points have significant implications for northern Virginia chronology. These point types are commonly recovered from sites throughout the Piedmont. Previously, most investigators in the region have lumped the Lobate with Early-to-Middle Archaic bifurcate types such as MacCorkle, St. Albans, or Kanawha, while the Woodland Side-Notched has been placed with Halifax or Vernon types (Johnson, 1986; Hranicky and Painter, 1989). Differentiating the Lobate form as a Middle Archaic type, distinct from earlier Archaic bifurcates, would necessarily lower population estimates based on projectile point seriation for the Early Archaic. Similarly, classification of certain side-notched forms as Woodland in date would substantially diminish the number of Halifax points encountered in northern Virginia. If projected directly onto population growth models, these seriation data, taken together, would tend to smooth out the apparent spikes in growth curves drawn for the Archaic (see Johnson, 1983b, for example), bringing them more in line with slow-growth models such as advocated by Turner (1978, 1989).

RADIOCARBON DATES

Radiocarbon samples were obtained from three sites, 44PW546, 44PW592, and 44LD459. Organic material suitable for dating was collected either from features or from secure stratigraphic levels. Eighteen samples were submitted for analysis to Beta Analytic, Inc., of Miami, Florida. Fourteen of the samples were dated using conventional techniques; four samples were small, and were dated by Accelerator Mass Spectrometry (AMS) at the Lawrence Livermore National Laboratory in California, through Beta Analytic. All of the radiocarbon dates are reported uncalibrated in years Before Present (B.P.).

Of the dates returned from the assays, two fell within the Early Woodland period, eight in the Middle Woodland, five in the Late Woodland (Table 3). Three dates were from the historic period. The fifteen prehistoric dates spanned a range from 2840 B.P. to 330 B.P. (Figure 5).

DEPOSITIONAL SEQUENCES AND CHRONOLOGY

The radiocarbon results were used in the interpretation of depositional processes and provided supplemental information relative to the ages of the sites. At 44PW546, radiocarbon data established a temporal sequence for deposits which reached 1 m in depth. A sample from a rock feature, Feature 2, located near the modern ground surface, returned a historic period date, providing evidence of relatively recent disturbance of the upper stratigraphic levels at the site. Feature 4, lower in the profile, returned two Late Woodland dates, while Feature 6, which underlay Feature 4, was dated to the Middle Woodland. A sample taken from below Feature 6 returned an Early Woodland date, preceding the core dates from the feature by ca. 1000 years. At 44PW592, a composite sample from the main occupation layer (Stratum B) was dated to the Middle Woodland, while charcoal from an intrusive feature (Feature 1) returned Late Woodland dates. At 44LD459, composite samples from one of the main occupation levels (Stratum C) returned Middle Woodland dates. A pit feature (Feature 4), which originated in Stratum B, was dated to the Middle Woodland. A Late Woodland date was also returned from Stratum B.

Projectile Point Correspondence

The range of radiocarbon dates from the sites spanned the Early, Middle, and Late Woodland. Projectile points recovered from the dated sites consisted of Piscataway and several triangular forms: Levanna, Madison, and Clarksville. While none of the points was directly associated with a dated feature, several were derived from the same relative stratigraphic positions as the radiocarbon samples. The two sources of data were considered to be indirectly associated and thus supplementary.

At 44PW546, five radiocarbon assays ranging from 2,840 to 1,670 B.P. indicated occupation during the Early to Middle Woodland period (Figure 6). A Piscataway point was among the diagnostic projectile points recovered from the site. While the point was contained in the second level below grade, above the

Table 3. Radiocarbon Dates

44PW546		
Early Woodland:		
Feature 6	2,840 ± 300 B.P.	(Beta 57601)
Middle Woodland:		
Feature 6	1,780 ± 60 B.P.	(Beta 59086)
Feature 6	1,760 ± 50 B.P.	(Beta 59084)
Feature 6	1,670 ± 50 B.P.	(Beta 54838)
Feature 6	1,000 ± 110 B.P.	(Beta 57600/CAMS 4326)
Late Woodland:		
Feature 4	590 ± 120 B.P.	(Beta 54839)
Feature 4	530 ± 110 B.P.	(Beta (57602)
Historic:		
Feature 2	230 ± 60 B.P	(Beta 54840)
Feature 8	180 ± 60 B.P.	(Beta (54841)
44PW592		
Middle Woodland:		
Stratum B	1,890 ± 70 B.P.	(Beta 57599/CAMS 4325)
Late Woodland:		
Feature 1	560 ± 100 B.P.	(Beta 54842)
Feature 1	330 ± 60 B.P.	(Beta 57598/CAMS 4324)
Historic:		
Stratum C	110 ± 70 B.P.	(Beta 57597)
44LD459		
Area A		
Middle Woodland:		
Stratum C	1,890 ± 70 B.P.	(Beta 57595/CAMS 4323)
Late Woodland:		
Stratum B	400 ± 90 B.P.	(Beta 54835)
Area C		
Early Woodland:		
Stratum B	2,410 ± 100 B.P.	(Beta 54837)
Middle Woodland:		
Stratum C	2,260 ± 140 B.P.	(Beta 57596)
Feature 4	1,730 ± 80 B.P.	(Beta 54836)

Early/Middle Woodland strata, the only other dated material from the site was Late Woodland. Thus the point was considered part of the Early-to-Middle Woodland assemblage. Early-to-Middle Woodland occupation was also indicated at 44LD459. Four radiocarbon dates from the site ranged from 2,410 to 1,730 B.P. Three Piscataway points were recovered from the same deposit which yielded the radiometric data. As suggested by Figure 6, the radiocarbon dates from these two

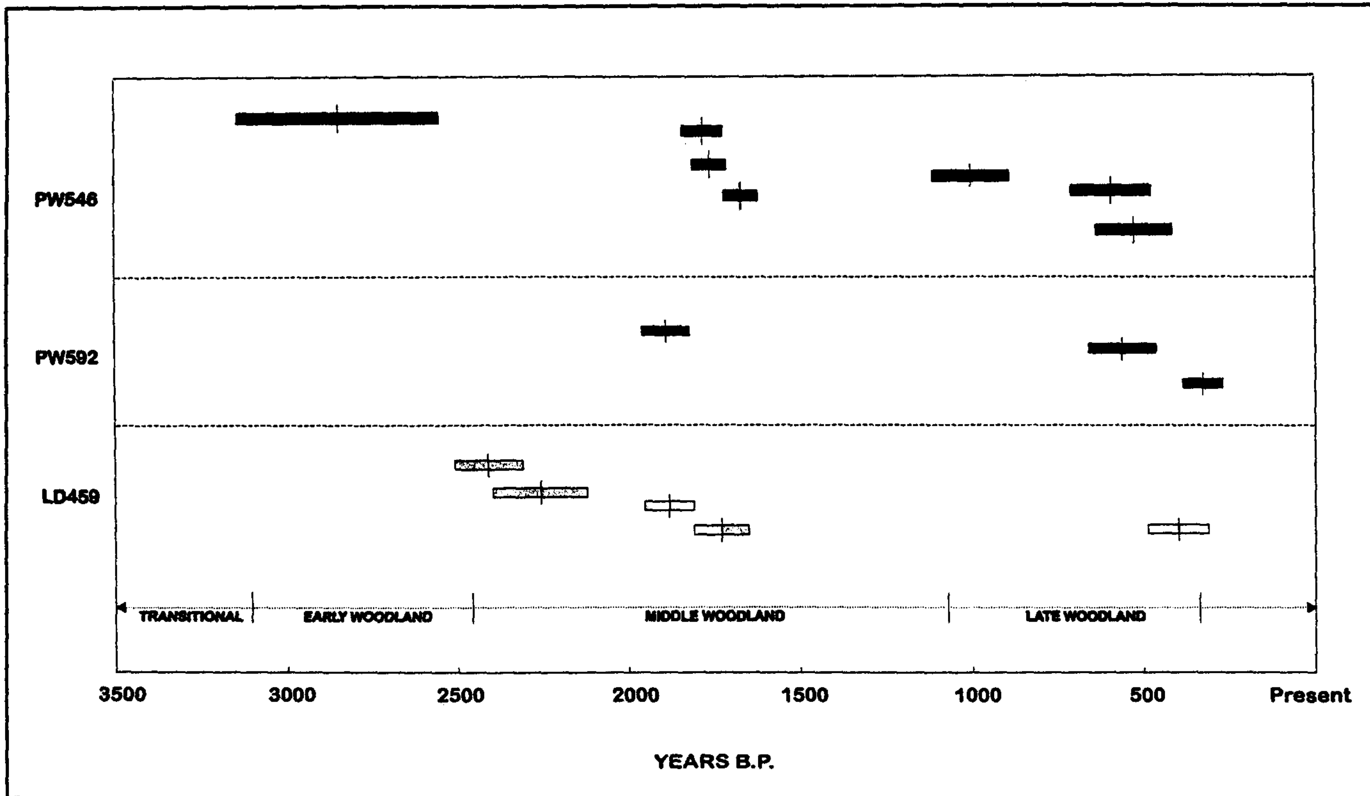


Figure 5. Prehistoric period radiocarbon dates displayed with one sigma precision.

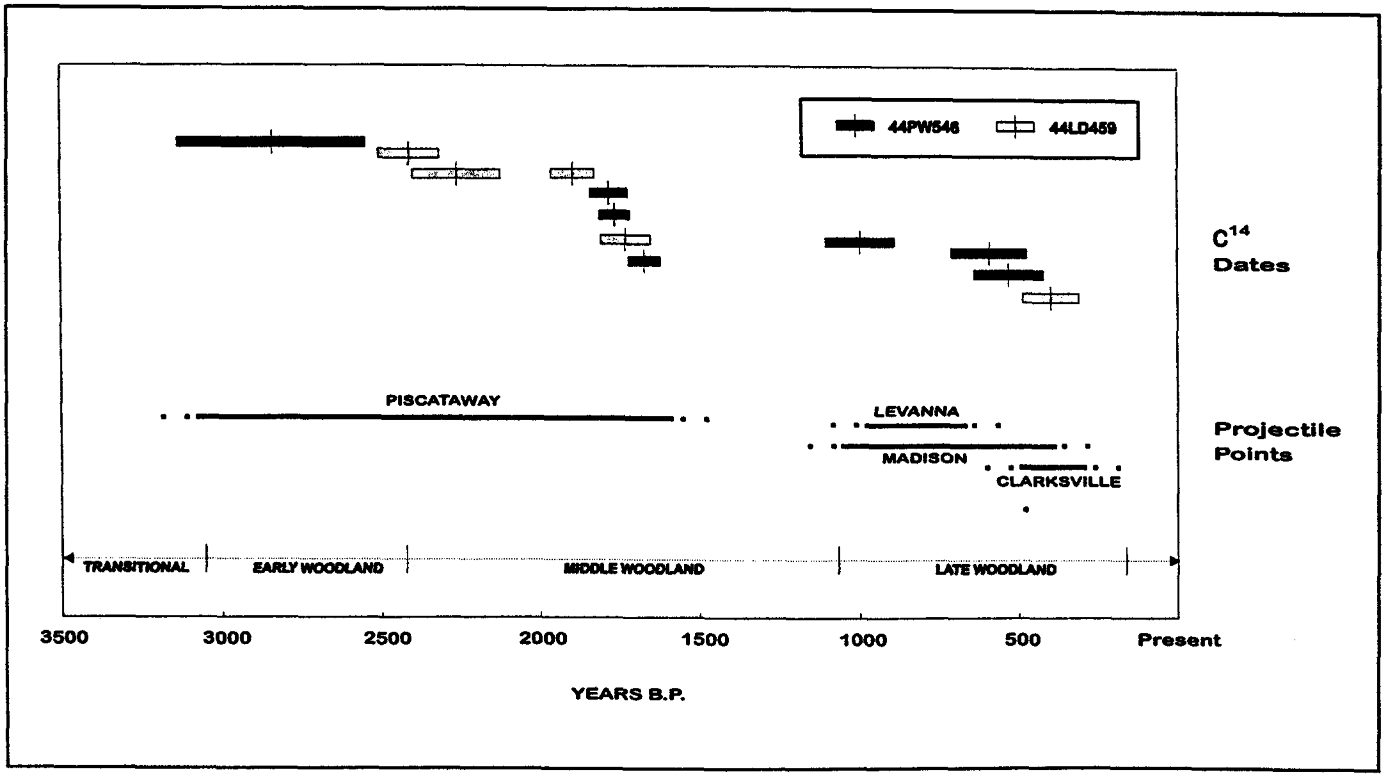


Figure 6. Correlation between radiocarbon dates and Woodland Period projectile points from 44PW546 and 44LD459.

sites, which cover a period from 2,840 to 1,670 B.P., provided a potential range for the Piscataway type which overlapped the Early and Middle Woodland periods. Note that these are site-specific data which do not necessarily imply the range of occurrence elsewhere.

The Late Woodland period points recovered from 44PW546 and 44LD459 also correlated with radiocarbon data from those sites (Figure 6). At 44PW546, dates of 530 B.P. and 590 B.P. were returned on two assays from Feature 4, a small, oval pit, while five triangular points, including three Levanna, one Madison, and two Clarksville, were recovered from various levels. The radiocarbon dates overlapped the accepted ranges of all three point types. At 44LD459, a date of 400 B.P. was returned from the upper levels of deposition, while six triangulars, one Levanna and five Clarksville, were recovered. The radiocarbon date corresponded with the accepted range of the later, Clarksville points.

Inferential Problems

Given the general scarcity of radiometric data from the northern Virginia Piedmont region, both direct and indirect information obtained from the radiocarbon assays at the sites in the current study were considered important for establishing temporal trends. On the whole, suitable material for radiometric analysis was not plentiful. At three of the six sites, no charcoal samples were collected: modern agricultural disturbance precluded the recovery of material from secure contexts at 44FQ107 and 44FQ113, while no organic material was preserved at 44PW554, despite relatively deep artifact bearing deposits. Radiocarbon samples were collected from the remaining three sites, 44PW546, 44PW592, and 44LD459, yet in each case, organic material was neither abundant nor well-preserved.

While radiocarbon dates proved to be of utility for the interpretation of chronology at 44PW546, 44PW592, and 44LD459, some of the results presented analytical difficulties due to discrepancies between radiometric data and the anticipated ages of stratigraphic contexts, or due to apparent imbalances between radiometric dates and chronologically diagnostic artifacts.

For example, at 44PW546, three dates from within Feature 6, a banked hearth, were almost identical statistically. But dates both older and younger than the core group were returned from below the feature. The younger date was not stratigraphically consistent. However, the date could not be rejected outright from consideration on objective criteria, and may have implied later use of the occupation horizon and isolated vertical mixing of organic material. In another portion of 44PW546, reversed stratigraphy was observed in a date of 180 B.P. returned from Feature 8, a charcoal concentration which was capped by an apparently intact prehistoric horizon. Field observations suggested that post-depositional contamination by faunal agents had likely carried recent organic material into the prehistoric deposit. At 44PW592, a radiocarbon sample dated

110 B.P. was collected from the basal stratum, Stratum C, which lay below a Middle Woodland deposit. As in the previous case, mixing by faunal agents was suspected. At 44LD459, dates returned from the two cultural strata in one area (Area C) were in reverse order to the apparent depositional sequence. In this case, the dates overlapped within the range of one sigma. Given the statistical precision of the radiometric counting procedure, the dates were in fact considered to be coincident.

These kinds of interpretive problems are not, of course, unique to the sites in the current study. As additional Piedmont sites produce radiocarbon data, similar situations can be anticipated. Inaccurate dates from various proveniences may occur due to a combination of shallow deposition and the action of common postdepositional processes which may mix deposits. The caveat is clear—the indiscriminate application of radiometric data may lead to incorrect interpretation, and thus all available data should be considered in the analysis of site chronology.

Beyond the question of the validity of the radiocarbon dates at the sites, there was a seeming lack of correspondence between the absolute dates and many of the projectile point types. For example, 44PW592 yielded two diagnostic points characteristic of the Middle Archaic period. Radiocarbon data, in contrast, suggested site use during the Early and Late Woodland periods. Based on the available evidence, it was difficult to determine whether scavenging or early site use best accounted for the presence of the projectile points at the site. Nonetheless, the findings illustrate the risks involved in relying on one form of data alone to interpret the chronology of site occupation. Judging from the occurrence of projectile point types, occupation at 44PW592 would have been assumed to date to the Middle Archaic period. However, with the addition of radiometric data, Woodland period site use was evident, and a new set of questions as to the sequence of occupations was raised.

At most of the sites, there was a similar lack of correspondence between radiocarbon dates and the full range of occupation implied by the projectile point types recovered. Nearly 100 points that dated stylistically to the various sub-periods of the Archaic were recovered from the sites, yet none of the radiocarbon data indicated Archaic period occupations (Figure 7). The lack of datable organic material from the Archaic occupations may have been due to the nature of site use during the period of occupation, possibly entailing activities which produced few carbonized residues. As is more likely the case, the absence of carbonized organics was due to the operation of postdepositional processes, which altered existing organic evidence. Whatever the final explanation, the findings suggest that temporal data from earlier occupations in the region may be expected to be different, and more limited, than that from later periods.

The six sites selected for the current study were chosen because they exhibited potential for the recovery of diagnostic artifacts, as well for the presence of

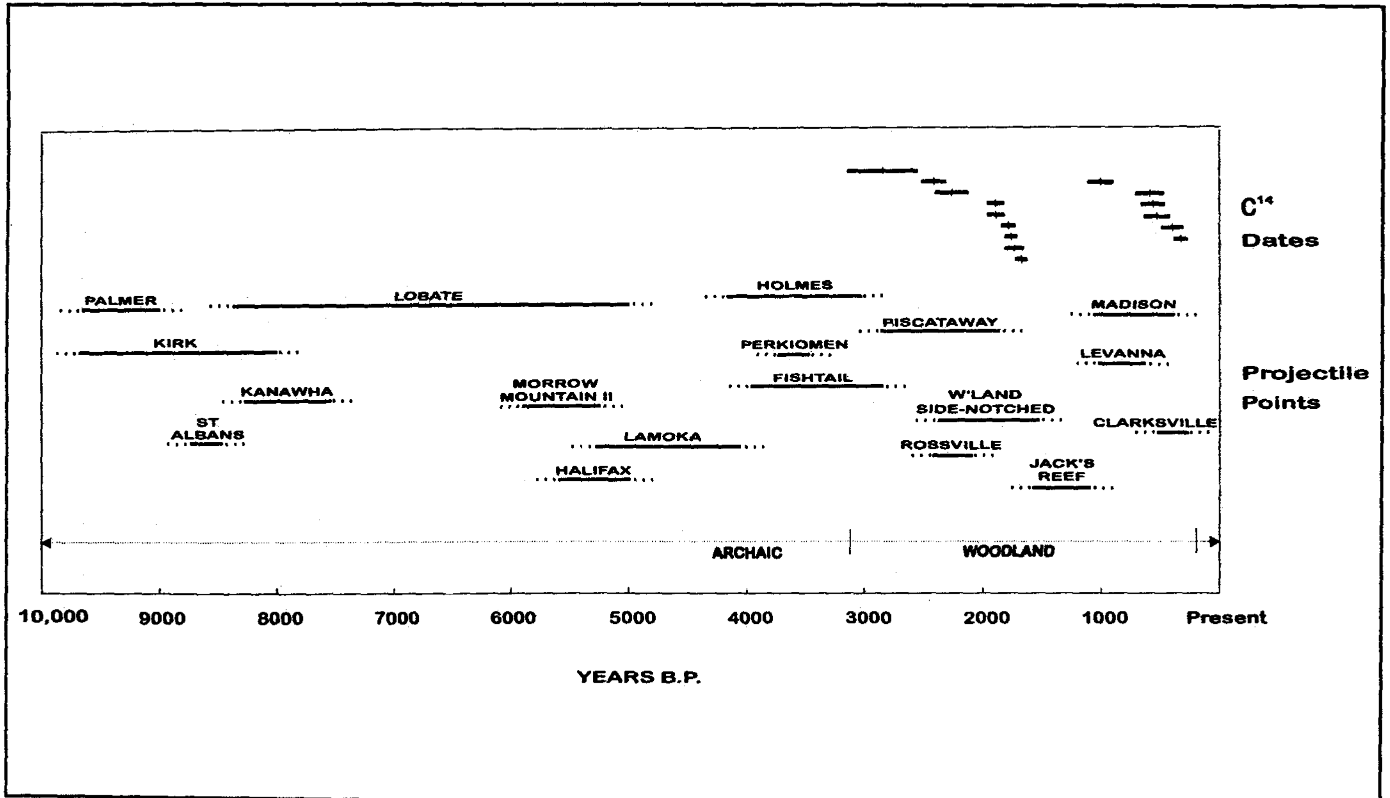


Figure 7. Correlation between radiocarbon dates and all projectile points.

discrete surface distributions or subsurface integrity. In comparison, many upland sites contain far fewer temporally diagnostic artifacts and a lower potential for retrieval of absolute dates. Therefore, chronological determination for many sites is less secure than is presented in these six cases. Nonetheless, low sample size in relation to area investigated in certain instances in the current study may be a factor in interpretive inconsistencies. At 44FQ113, for example, where only nineteen points were recovered, the low number of diagnostic artifacts appeared to be related to low overall artifact density, despite good surface exposure in a deflated and plowed context. At 44PW546, 44PW592, and 44LD459, the total number of diagnostic points ranged from two to twelve. Generally low artifact densities at these sites, in combination with small total area excavated (30 to 60 m^2), could account for these frequencies of occurrence. While additional excavation at the sites may have yielded more diagnostic artifacts, field methodologies targeted areas of highest artifact concentration, and thus the samples of diagnostic material were considered representative.

CONCLUSION

This article has presented data on the chronology of a series of prehistoric sites located in the Piedmont region of northern Virginia, documenting the substance and quality of the temporal data present at the sites. While many of the projectile point types recovered were consistent with conventionally accepted morphological types in the region, two commonly occurring, but poorly documented types, Lobate and Woodland Side-Notched, were noted. Their presence, and the temporal periods they appear to represent, had implications for patterns of population growth and settlement patterning in the Piedmont. Radiocarbon data from several of the sites in the study provided important information for establishing periods of site-specific occupation and chronology. The radiocarbon data also provided valuable supplementary data relevant to the local temporal ranges of certain types, including the Piscataway and several triangulars.

In addition to site-specific issues, wider matters of inference in site interpretation were addressed, including the need for precise examination of the correspondence between absolute dates and stratigraphy, and the implications of imbalances between the occurrence of absolute dates and diagnostic artifacts. The study also highlighted the potential difficulties involved in extrapolating settlement pattern data from projectile point frequencies alone, and thus indicated the complementary nature of relative and absolute dating in site interpretation. Although the potential limitations of these two types of data should be seriously considered by archaeologists working in similar physiographic regions, the study indicated that artifact style and radiometric data do indeed provide valuable sources of chronological data, particularly when used in both complementary and supplementary fashion.

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