

Chapter 3

Quarries and Artifacts

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Prior to developing a sampling scheme, an effort was made to identify and map all known quarries in the Carolina Slate Belt. Site files at the North Carolina Office of State Archaeology (OSA) were reviewed, and additional information was obtained from amateur archaeologists. The resulting information was compiled into a database (Appendix B). While many quarries were identified in areas of intensive archaeological survey (i.e., the Uwharrie National Forest and Morrow Mountain State Park), the database includes isolated quarries and workshops in Alamance, Anson, Chatham, Davidson, Durham, Orange, and Union counties. Archaeological surveys by Abbott (1987), Cooper and Hanchette (1977), Benson (1999), Daniel and Butler (1991, 1996), Hargrove (1989), Millis (2003), and others have recorded numerous metavolcanic and metasedimentary quarry sites in the Carolina Slate Belt. It should be noted that dense concentrations of recorded quarry sites within the Uwharrie National Forest are in many cases simply the most visible expressions of a single quarry complex (e.g., the Wolf Den and Shingle Trap Mountain areas) and as such represent the prehistoric exploitation of a single expansive stone resource area (e.g., Cooper and Hanchette 1977; Benson 1999). In all, over 100 quarries and limited-use extraction sites were identified (Figure 3.1). This compilation served as the baseline from which our sample locations were selected.

Below we describe the sites that produced our rock samples and how these samples were collected. We also describe the artifacts from sites at Fort Bragg that were selected for comparison to the quarry samples.

Quarry Sites

A total of 71 rock samples from 25 quarries or possible source locations were examined in this study (Table 3.1; Figures 3.2-3.3; Appendix A). While the majority of sample locations are recorded archaeological quarries, a few simply represent local geological deposits. Quarries were sampled from Montgomery, Randolph, and Stanly counties in the Uwharrie Mountains and from Chatham, Orange, Durham, and Person counties outside of the Uwharries. Additional samples were taken from a source near Fayetteville in Cumberland County.

As mentioned in Chapter 1, sites were grouped into quarry zones according to spatial proximity and geologic characteristics. Individual quarry sites are here described under the heading of the zone to which they were assigned. Descriptions include information about terrain, sample provenience, rock exposures, geologic formation, and the nature of each sample.

Many of the samples from the Uwharrie Mountains (Figure 3.4) were originally collected by Randolph Daniel and Robert Butler during the early 1990s as part of Daniel's dissertation

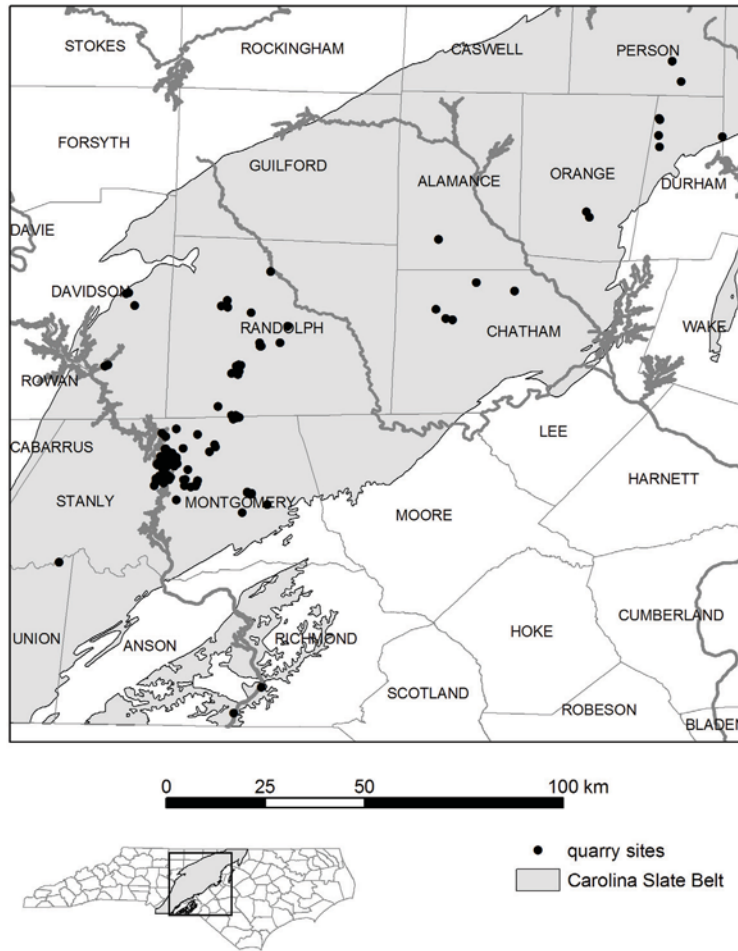


Figure 3.1. Recorded quarry sites in the Carolina Slate Belt of North Carolina.

research (Daniel and Butler 1996). These rock samples are now curated at the Research Laboratories of Archaeology (RLA), University of North Carolina at Chapel Hill. Additional quarry samples were obtained during several field trips to quarry locations throughout the Carolina Slate Belt in 2002 and 2003. Participants in these trips included Christopher Moore, Jeffrey Irwin, Edward Stoddard, Brent Miller, Randolph Daniel, and Michael Harmon. Many of the new quarries in this study were brought to our attention by other archaeologists, both professional and amateur.

Uwharries Southeastern

The Uwharries Southeastern zone contains the Horse Trough Mountain and Lick Mountain quarries (Figure B.1). These quarries are located on the eastern side of the Yadkin-Pee Dee River in the Uwharrie National Forest and are part of the Uwharrie Formation.

The Horse Trough site was selected on the advice of Harmon, who recalled earlier visits to the site and suggested its potential as a quarry. Two samples (FBL025-FBL026) were collected from the southern portion of the ridge in the general vicinity of two recorded nonquarry archaeological sites (31Mg378 and 31Mg379). Because Horse Trough Mountain is forested and

Table 3.1. Quarry Samples Used in the Present Study.

Quarry Zone:	Sample	Site Number	Site Name	UTM ^a		Field Description	Code	North Carolina Geologic Map ^b		Formation
				Northing	Eastng			Description	Description	
<i>Uwharries Southeastern:</i>										
	FBL025	31Mg378/379	Horse Trough Mountain	3908577	586311	dacite	CZfv ₁		felsic metavolcanic rock	Uwharrie
	FBL026	31Mg378/379	Horse Trough Mountain	3908577	586311	dacite	CZfv ₁		felsic metavolcanic rock	Uwharrie
	FBL051	31Mg222	USS Ranger Quarry	3913923	588488	dacite	CZfv ₁		felsic metavolcanic rock	Uwharrie
	FBL052	31Mg222	USS Ranger Quarry	3913923	588488	dacite	CZfv ₁		felsic metavolcanic rock	Uwharrie
	FBL053	31Mg222	USS Ranger Quarry	3913923	588488	dacite	CZfv ₁		felsic metavolcanic rock	Uwharrie
	FBL054	31Mg222	USS Ranger Quarry	3913923	588488	dacite	CZfv ₁		felsic metavolcanic rock	Uwharrie
<i>Uwharries Southern:</i>										
	FBL015	31St18	Morrow Mountain	3912209	582492	felsite	CZfv		felsic metavolcanic rock	Tillery
	FBL016	31St64	Tater Top Mountain	3912917	584354	felsite	CZmd ₁		metamudstone and meta-argillite	Tillery
	FBL017	31St18	Morrow Mountain	3912252	582362	felsite	CZfv		felsic metavolcanic rock	Tillery
	FBL018	31St18	Morrow Mountain	3912421	582459	felsite	CZfv		felsic metavolcanic rock	Tillery
	FBL019	31St18	Morrow Mountain	3912560	582554	felsite	CZfv		felsic metavolcanic rock	Tillery
<i>Uwharries Eastern:</i>										
	FBL001	31Mg554	Shingle Trap Mountain	3917872	587452	dacite	CZfv		felsic metavolcanic rock	Tillery
	FBL002	31Mg554	Shingle Trap Mountain	3918056	587342	dacite	CZfv		felsic metavolcanic rock	Tillery
	FBL003	31Mg554	Shingle Trap Mountain	3918363	586781	dacite	CZfv		felsic metavolcanic rock	Tillery
	FBL004	31Mg554	Shingle Trap Mountain	3918121	586929	dacite	CZfv		felsic metavolcanic rock	Tillery
	FBL005	31St68	Sugarloaf West	3914124	582758	dacite	CZfv		felsic metavolcanic rock	Tillery
	FBL006	31St66	Sugarloaf Mountain	3913852	583741	dacite	CZfv		felsic metavolcanic rock	Tillery
	FBL007	31St67	Hattaway Mountain	3914765	583453	dacite	CZfv		felsic metavolcanic rock	Tillery
<i>Uwharries Western:</i>										
	FBL008		Falls Dam	3916984	583805	andesite	CZfv		felsic metavolcanic rock	Cid
	FBL009	31Mg639	Wolf Den 639	3918067	584251	andesite	CZfv		felsic metavolcanic rock	Cid
	FBL010	31Mg639	Wolf Den 639	3917939	584300	andesite	CZfv		felsic metavolcanic rock	Cid
	FBL011	31Mg117	Wolf Den 117	3918742	584316	andesite	CZfv		felsic metavolcanic rock	Cid
	FBL012	31Mg117	Wolf Den 117	3918742	584316	andesite/latite	CZfv		felsic metavolcanic rock	Cid
	FBL013	31Mg640	Wolf Den 640	3917723	583542	andesite	CZfv ^c		felsic metavolcanic rock	Cid
	FBL014	31Mg641		3926732	586632	andesite/latite	CZmv ₁		mafic metavolcanic rock	Cid

Table 3.1. Quarry Samples Used in the Present Study (continued).

Quarry Zone:	Sample	Site Number	Site Name	UTM ^a		Field Description	Code	North Carolina Geologic Map ^b	
				Northing	Eastng			Description	Formation
<i>Uwharries Asheboro:</i>									
	FBL020	31Rd37		3948533	603523	tuff	CZmv	mafic metavolcanic rock	Uwharrie
	FBL021	31Rd1201	Carroway Mountain	3957237	596949	dacite/andesite	CZmd ₁	metamudstone and meta-argillite	Tillery
	FBL022	31Rd1202	Tater Head Mountain	3957598	595573	dacite/andesite	CZfv	felsic metavolcanic rock	Tillery
	FBL023		Dave's Mountain	3954020	605891	dacite	CZfv ₁	felsic metavolcanic rock	Uwharrie
	FBL024	31Rd37		3948601	603912	tuff	CZmv	mafic metavolcanic rock	Uwharrie
	FBL055	31Rd1350	Northampton Rd. Quarry	3948745	607738	dacite	CZfv ₁	felsic metavolcanic rock	Uwharrie
<i>Chatham Pitsboro:</i>									
	FBL027	31Ch729	Joe Moylan Quarry	3962336	655804	mudstone	CZmd	metamudstone and meta-argillite	
	FBL028	31Ch729	Joe Moylan Quarry	3962336	655804	mudstone	CZmd	metamudstone and meta-argillite	
	FBL029	31CH729	Joe Moylan Quarry	3962336	655804	siltstone	CZmd	metamudstone and meta-argillite	
	FBL030	31Ch729	Joe Moylan Quarry	3962336	655804	fine sandstone	CZmd	metamudstone and meta-argillite	
	FBL056	31Ch729	Joe Moylan Quarry	3962589	656168	mudstone	CZmd	metamudstone and meta-argillite	
	FBL057	31Ch729	Joe Moylan Quarry	3962454	655975	mudstone	CZmd	metamudstone and meta-argillite	
<i>Chatham Siler City:</i>									
	FBL035		Rocky River 1	3955002	642790	mud/siltstone	CZmd	metamudstone and meta-argillite	
	FBL036		Rocky River 2	3955158	642626	dacite	CZmd	metamudstone and meta-argillite	
	FBL037		Rocky River 3	3955297	642445	mudstone	CZmd	metamudstone and meta-argillite	
	FBL038	31Ch427	31Ch427	3955164	641835	sandstone	CZmd	metamudstone and meta-argillite	
<i>Chatham Silk Hope:</i>									
	FBL031	31Ch741	Chestnut Hill Quarry	3964340	647964	dacite/rhyodacite	CZiv ^d	intermediate metavolcanic rock	
	FBL032	31Ch741	Chestnut Hill Quarry	3964340	647964	lithic tuff	CZiv ^d	intermediate metavolcanic rock	
	FBL033	31Ch741	Chestnut Hill Quarry	3964340	647964	dacite	CZiv ^d	intermediate metavolcanic rock	
	FBL034	31Ch741	Chestnut Hill Quarry	3964340	647964	lithic tuff	CZiv ^d	intermediate metavolcanic rock	
	FBL058	31Ch741	Chestnut Hill Quarry	3964275	648050	lithic tuff	CZiv	intermediate metavolcanic rock	
	FBL059	31Ch741	Chestnut Hill Quarry	3964353	647937	lithic tuff	CZiv ^d	intermediate metavolcanic rock	
<i>Orange County:</i>									
	FBL060	31Or564	Bald Mountain Quarry	3982716	670171	dacite	CZfv	felsic metavolcanic rock	
	FBL061	31Or564	Bald Mountain Quarry	3982672	670133	dacite	CZfv	felsic metavolcanic rock	

Table 3.1. Quarry Samples Used in the Present Study (continued).

Sample	Site Number	Site Name	UTM ^a		Field Description	Code	North Carolina Geologic Map ^b	
			Northing	Easting			Description	Formation
<i>Quarry Zone:</i>								
FBL062	31Or564	Bald Mountain Quarry	3982816	670076	dacite	CZfv	felsic metavolcanic rock	
FBL063	31Or549		3981131	670883	dacite	PzZg ^d	metamorphosed gabbro and diorite	
FBL064	31Or549		3981195	670815	dacite	PzZg ^d	metamorphosed gabbro and diorite	
FBL065	31Or549		3981171	670810	dacite	PzZg ^d	metamorphosed gabbro and diorite	
<i>Durham County:</i>								
FBL047	31Dh703	Cains Chapel Quarry	3999181	684723	dacite	CZfv	felsic metavolcanic rock	
FBL048	31Dh703	Cains Chapel Quarry	3999181	684723	sandstone	CZfv	felsic metavolcanic rock	
FBL049	31Dh703	Cains Chapel Quarry	3999181	684723	sandstone	CZfv	felsic metavolcanic rock	
FBL050	31Dh703	Cains Chapel Quarry	3999181	684723	tuff	CZfv	felsic metavolcanic rock	
FBL066	31Dh703	Cains Chapel Quarry	3998905	684667	dacite	CZfv	felsic metavolcanic rock	
FBL067	31Dh703	Cains Chapel Quarry	3999235	684872	sandstone	CZfv	felsic metavolcanic rock	
<i>Person County:</i>								
FBL043	31Pr115	Powerline Quarry	4015567	688965	mudstone?	CZfv	felsic metavolcanic rock	
FBL044	31Pr115	Powerline Quarry	4015567	688965	tuff	CZfv	felsic metavolcanic rock	
FBL045	31Pr115	Powerline Quarry	4015567	688965	mudstone	CZfv	felsic metavolcanic rock	
FBL046	31Pr115	Powerline Quarry	4015567	688965	sandstone	CZfv	felsic metavolcanic rock	
FBL068	31Pr115	Powerline Quarry	4015213	689130	siltstone	CZfv	felsic metavolcanic rock	
FBL069	31Pr115	Powerline Quarry	4015889	688827	siltstone	CZfv	felsic metavolcanic rock	
<i>Cumberland County:</i>								
FBL039	31Cd400		3890907	700336	aplite			
FBL040	31Cd400		3890907	700336	basalt			
FBL041	31Cd400		3890907	700336	diorite			
FBL042	31Cd424		3890818	700408	tuff?			
FBL070	31Cd402		3890184	701416	greenstone			
FBL071	31Cd424		3890818	700408	metagabbro			

^a NAD 1927 datum.^b North Carolina Geological Survey (1985).^c Near contact with CZmv₁ (mafic metavolcanic rock).^d Near contact with CZfv (felsic metavolcanic rock).

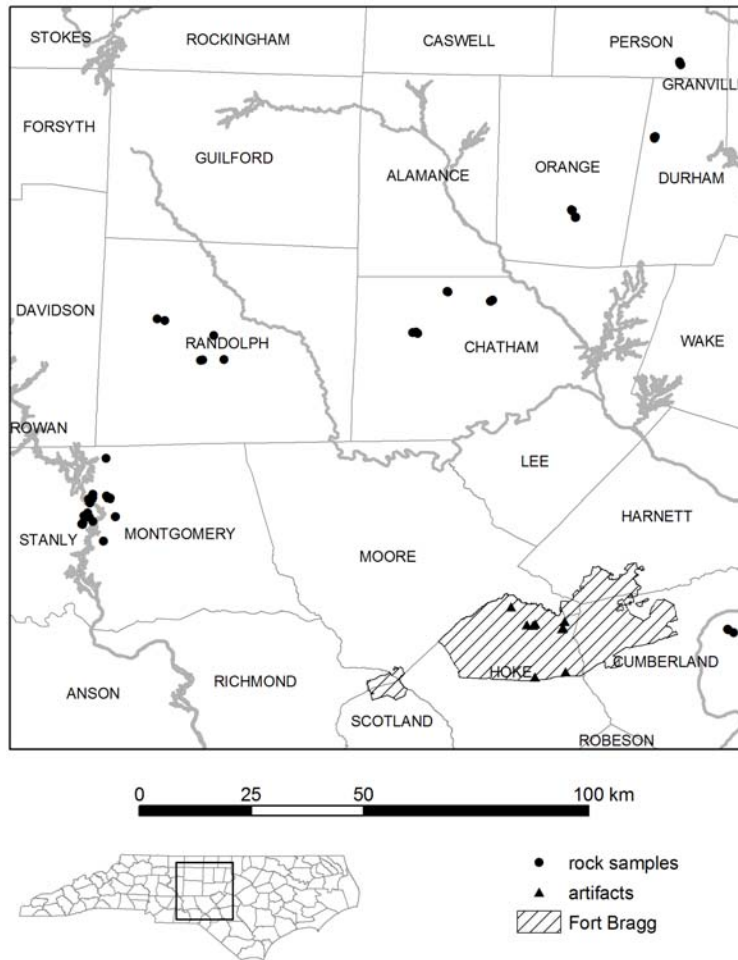


Figure 3.2. Sample locations mapped by county.

most areas were covered in dense leaf litter, identifying potential areas of quarrying was difficult. Actual evidence of quarry debris was rare. Several areas of boulder outcrops and float were observed, and several large rocks appeared to have large flake scars. Some possible quarry debris was observed around the bases of trees. The material is a coarse-grained metadacite. This site was probably minimally used prehistorically, although a more intensive survey of the mountain may reveal areas with denser debris.

Four samples from Lick Mountain were collected from the general vicinity of a quarry site, 31Mg222, first recorded by Peter Cooper in 1977. The samples were taken from the summit of a hill just west of Lick Mountain proper. Quarry debris was lightly scattered along the ridge and around the bases of trees (Figure 3.5). Low density suggests minor use of this source prehistorically. Boulder outcrop and float were also observed. Samples include actual quarry debris consisting of large primary reduction flakes (FBL051-FBL052) and bedrock taken from outcrop in the immediate vicinity of the site (FBL053-FBL054). Like the Horse Trough specimens, these rocks are coarse-grained metadacite.

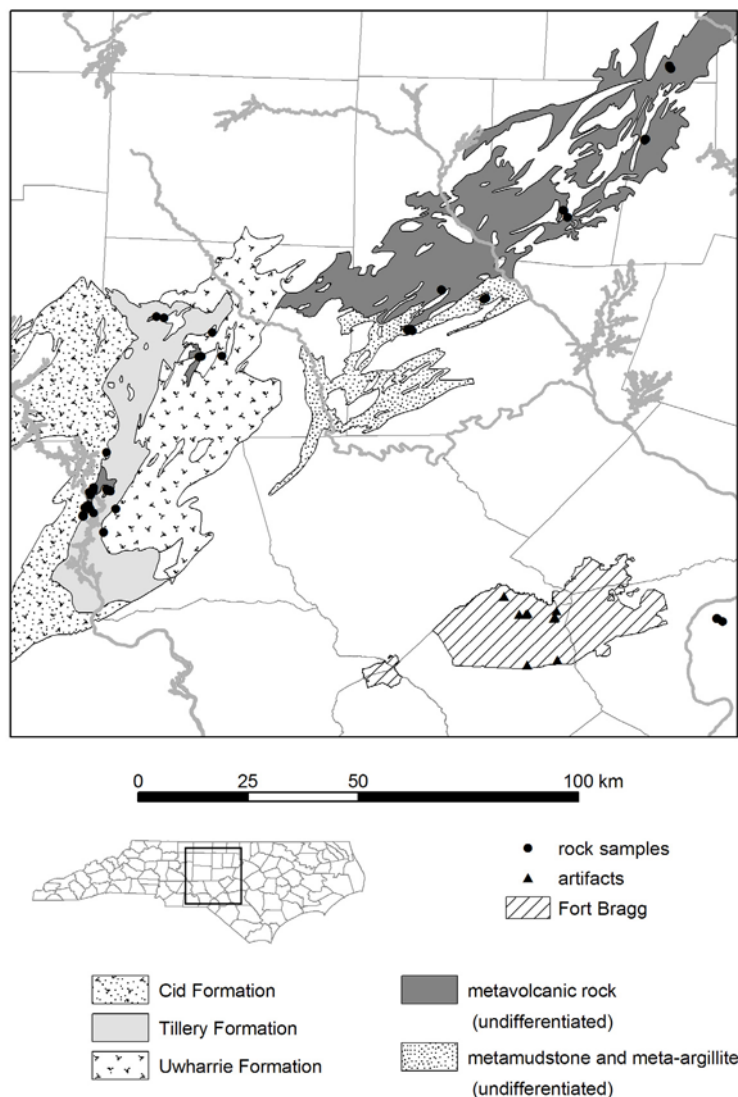


Figure 3.3. Sample locations mapped by geologic formation.

Uwharries Southern

The Uwharries Southern zone is represented by five samples collected by Daniel and Butler (1996:13-15) directly from Morrow Mountain and Tater Top Mountain (Figure B.2). This quarry zone corresponds to Daniel and Butler’s “Morrow Mountain rhyolite.” While Tater Top Mountain is a minor quarry site, Morrow Mountain is known as one of the largest and most intensively used quarry sites in North Carolina. Morrow Mountain stone is considered to be of very high quality for tool manufacture. It is fine-grained and aphyric and is the only sampled stone exhibiting flow banding. Daniel and Butler describe the stone from Tater Top as having a blocky fracture. Both quarries are part of the Tillery Formation and are the only known quarry sites in the area that produce nonporphyritic felsite.

The samples, which include one specimen from Tater Top Mountain (FBL016) and four specimens from Morrow Mountain (FBL015, FBL017-FBL019), consist of both quarry flakes

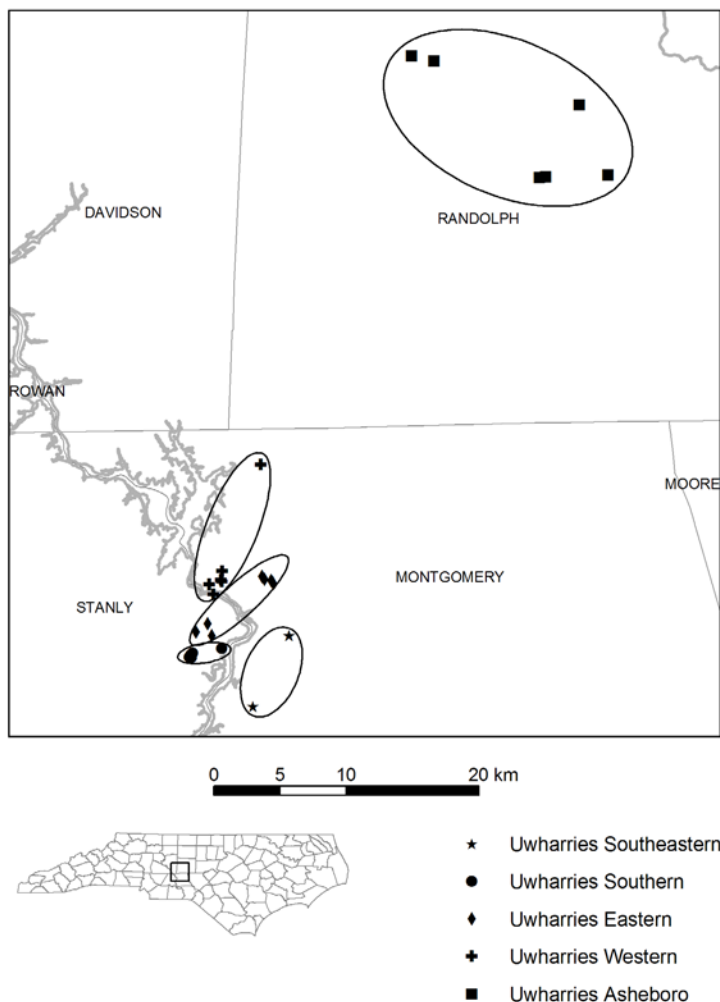


Figure 3.4. Quarry zones and sample locations in the Uwharrie Mountains.

and bedrock. A number of these were obtained from an erosional gully near the top of Morrow Mountain on the southeastern slope (Figure 3.6; also see Daniel and Butler 1996:Figure 8).

Uwharries Eastern

Four other quarries within the Tillery Formation constitute the Uwharries Eastern zone (Figure B.3). These quarries include Hattaway Mountain (FBL007), Sugarloaf Mountain (FBL006), an unnamed peak in Morrow Mountain State Park just west of Sugarloaf Mountain (FBL005), and Shingle Trap Mountain in the Uwharrie National Forest (FBL001-FBL004). Daniel and Butler observed localized but abundant quarry debris at Hattaway Mountain, an “extensive mountain-top quarry” at Sugarloaf Mountain, low density debris and minor use at the unnamed peak (St68), and a major quarry with continuous distribution of debris along the summit at Shingle Trap (1996:20-22). Quarries in this zone yield a porphyritic dacite which is exposed along the mountain ridges and is consistent with Daniel and Butler’s (1996:20) “Sugarloaf Mountain rhyolite.” This material was generally available for use by prehistoric inhabitants but was apparently less desirable than the felsite from Morrow Mountain.



Figure 3.5. Jeffrey Irwin collecting quarry debris on Lick Mountain in the general vicinity of site 31Mg222, Uwharries Southeastern zone.

With the exception of two samples from Shingle Trap Mountain, all samples from this zone were collected by Daniel and Butler. Two Shingle Trap samples were collected in 2002 (FBL002, FBL004). These correspond to the general locations of Daniel and Butler’s samples HD18a and HD18b (FBL001 and FBL003, respectively).

Uwharries Western

The Uwharries Western zone consists of quarries within the Cid Formation. These quarries are included in Daniel and Butler’s (1996:16-19) “Wolf Den rhyolite” and are represented by seven samples of meta-andesite and metalatite from three areas (Figure B.4). All but two of the samples were collected by Daniel and Butler.

Five Uwharries Western samples come from three sites (31Mg639, 31Mg117, and 31Mg640) in the Wolf Den Mountain area, which is just north and east of the Yadkin-Pee Dee River and just west of Shingle Trap Mountain. Two samples were collected in 2002 (FBL010 and FBL012), and the other three samples were acquired from the Daniel and Butler collections (FBL009, FBL011, and FBL013). Quarry debris density varies considerably from location to location at the Wolf Den sites, with heavy concentrations visible in areas of significant ground disturbance and erosion (Figure 3.7). Daniel and Butler (1996:16-19) observed abundant debris and small boulders at 31Mg117; small outcrops and cores, chunks, and flakes at 31Mg639; and thin scattering of debris at 31Mg640.



Figure 3.6. Dense quarry debris from erosional gully on Morrow Mountain, Uwharries Southern zone. The scale bar in the lower right corner of the image is approximately 10 cm long.

Another Uwharries Western sample was collected by Daniel and Butler further south along the Yadkin-Pee Dee River in the vicinity of Falls Dam (FBL008). This sample comes from outcrop and may not be associated with an actual quarry site (Randolph Daniel, personal communication 2002). No attempt was made to relocate the outcrop.

The final sample was collected by Daniel and Butler from site 31Mg641 (FBL014). This quarry is located east of Badin Lake and just north of Eldorado near Highway 109. Daniel and Butler (1996:18) describe the site as “larger but less intensively used than Wolf Den.” No attempt was made to revisit the site, which is now on private property.

Uwharries Asheboro

This zone consists of four quarries and one possible quarry (Dave’s Mountain) in the vicinity of Asheboro (Figure B.5). Three of the sites from this zone fall within the Uwharrie Formation.



Figure 3.7. Brent Miller collecting samples on Wolf Den Mountain, Uwharries Western zone. Note the outcrop and the surrounding quarry debris on the ground surface.

These include 31Rd1350 along Northhampton Road in southern Asheboro (FBL055), 31Rd37 just southwest of Asheboro (FBL020, FBL024), and Dave's Mountain in northern Asheboro (FBL023). Two Uwharries Asheboro quarries fall within the Tillery Formation. These quarries occur in a group of mountains just west and north of Asheboro and include 31Rd1201 just west of Caraway Mountain (FBL021) and 31Rd1202 at Tater Head Mountain (FBL022). Except for FBL055, all Uwharries Asheboro samples were collected by Daniel and Butler (1996:27-29; note that their sites Rd852, Rd854, and Rd855 are equivalent to our sites 31Rd1350, 31Rd1201, and 31Rd1202, respectively).

Stoddard and Moore collected sample FBL055 in 2003 in a wooded area along Northhampton Road in the vicinity of 31Rd1350. This sample was taken directly from a rock outcrop (Figure 3.8). This wooded site has extensive outcrop exposures and a light scatter of large quarry debris. Daniel and Butler (1996:28-29) observed "worked outcrops" at 31Rd1350; they found a "minor amount of debris" consisting of light gray, sugary, crystal-lithic metatuff.

Site 31Rd37 is located in an area with extensive development and ground disturbance that may have obliterated the original quarry site. A revisit to the site did not reveal any significant quarry debris along the highway or in other accessible areas. Samples FBL020 and FBL024 are Daniel and Butler's (1996:27-28) "metarhyolite."

Sample FBL023 is from Dave's Mountain on the northern edge of the Uwharrie Mountains. This mountain was sampled by Daniel and Butler (1996:30-31) and considered to be an unlikely quarry, although significant modern development precluded adequate survey. Daniel and Butler describe the stone as dense plagioclase porphyritic rhyolite with a blocky fracture. No attempt was made to revisit the site since it is in an area of Asheboro that is heavily developed.



Figure 3.8. Edward Stoddard collecting outcrop sample (FBL055) at site 31Rd1350, Uwharries Asheboro zone.

Attempts to relocate the 31Rd1201 and 31Rd1202 quarries were made by Stoddard and Moore in 2003. Small amounts of quarry debris were found at 31Rd1201, consistent with the minor quarry status attributed by Daniel and Butler (1996:29; their site Rd854). More extensive outcrop and artifact debris was observed at 31Rd1202, which Daniel and Butler (1996:30; their site Rd855) describe as “the most intensively quarried source” in the Asheboro area. Both quarries are composed primarily of dacite, although the quarry debris observed by Stoddard and Moore at each site appeared visually distinctive.

Chatham Pittsboro

This zone is represented by six samples taken from a single large quarry, 31Ch729, in north-central Chatham County (Figures 3.9, B.6). This extensive site is the largest known quarry in the county and has clusters of moderate and dense quarry debris scattered over several hundred meters of a ridge crosscut by a small stream (Figure 3.10). The site was recorded by amateur archaeologist Joseph Moylan and is now part of a large residential development. Dense quarry debris is scattered on both sides of a residential road, and quarry debris is being used to landscape yards (Figure 3.11). Phase 1 samples (FBL027-FBL030) were taken from a central location within the residential development. Phase 2 samples were taken with more precise GPS provenience. Sample FBL056 is a piece of quarry debris taken from the northeastern portion of the site. Sample FBL057 is from a float boulder along the main road into the quarry, close to the Long Branch tributary.

The Chatham Pittsboro quarry appears distinct from the Uwharries quarries in that the rock is primarily a very fine-grained, nonporphyritic metasedimentary material. Many larger rocks and

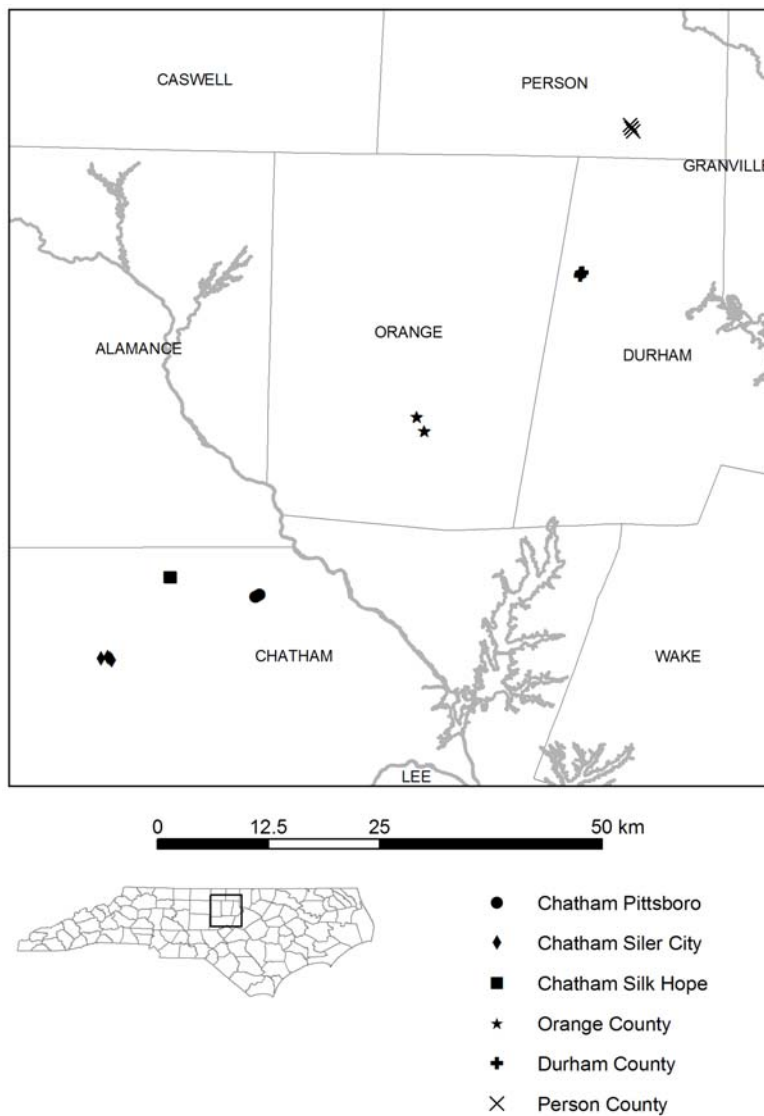


Figure 3.9. Quarry zones and sample locations in the northern portion of the study area.

outcrops observed at the site have clear sedimentary bedding (Figure 3.12). This massive, parallel bedding with differential textures across layers is distinct from the flow banding seen in Morrow Mountain material, but it may not always be visible in flakes and bifaces. The rocks themselves show a range of colors and textures. Most of the worked pieces are extremely fine-grained and bluish-gray to greenish-gray or black in color.

Chatham Siler City

The Chatham Siler City zone is represented by four samples collected near two sites reported to be quarry or quarry workshop locations (Figure B.7). FBL038 was taken from the vicinity of 31Ch427, a quarry site identified during a cultural resources survey for the US 421 bypass



Figure 3.10. Quarry debris at site 31Ch729, Chatham Pittsboro zone.



Figure 3.11. Quarry debris used for landscaping near site 31Ch729, Chatham Pittsboro zone.



Figure 3.12. Rock with parallel bedding still visible, Chatham Pittsboro zone.

around Siler City (Baker 1980; Cable and Mueller 1980). This large site was originally an agricultural field on a hilltop with a localized outcrop of small boulders of andesite porphyry. A revisit revealed that the site had recently been destroyed by development. Sample FBL038 was taken from the general site area, although it does not appear to match the rock type seen in 1980.

An attempt was also made by Stoddard and Moore to find 31Ch578 along the Rocky River. Although the site was not relocated, samples of metavolcanic rocks were taken from several places on both the west and east side of the river (FBL035, FBL036, FBL037). The samples represent float (FBL035, FBL037) and outcrop (FBL036) from the Rocky River and its surrounding terraces, just east of Siler City.

Samples from this zone included three metasedimentary rocks and a single example of dacite. This is a heterogeneous group with little known prehistoric utilization.

Chatham Silk Hope

This zone is represented by six samples taken from a single quarry site in north-central Chatham county (Figure B.8). The site was identified by Robert Graham and is known as Chestnut Hill (31Ch741). The known extent of the quarry site is restricted to a small hill with a few large trees and a dirt road leading to and around the side of the quarry. Dense flake debris was observed covering large portions of the hill and a graded dirt road that runs up the hill. Quarry debris was also visible around trees and other areas of disturbed ground (Figure 3.13).



Figure 3.13. Eroded roadbed and dense quarry debris at site 31Ch741, Chatham Silk Hope zone.

Phase 1 samples FBL031-FBL034 have general provenience from the quarry. Phase 2 samples FBL058 and FBL059 were collected by Stoddard and Moore, and their exact locations were recorded using a GPS unit.

Although Chestnut Hill is just a few kilometers east of 31Ch427 (in the Chatham Siler City zone), the material is unique. Described by Stoddard as lithic tuff and dacite, the rocks from Chestnut Hill are often dark purple or blue in color, although hues of red are also prevalent. Quarry debris containing fragments of rock within the overall groundmass are common. The debris varies in density from moderate to heavy and covers the entire hill and slope. Although variability within the quarry is quite high, the Chestnut Hill material is as visually distinct as anything observed at any other quarry.

Orange County

This zone consists of six samples taken from two quarries in Orange County (Figure B.9). An archaeological survey by Heather Millis (2003) located one potential quarry or quarry workshop area (31Or549), and local resident Mary Ayers located the second, larger quarry on Bald Mountain (31Or564), immediately to the north of the first. The Bald Mountain quarry sits on a large hill located on the edge of Duke Forest. The hill is heavily wooded and contains large outcrop “fins” and boulder float surrounded by areas of light to moderate quarry debris. Dense leaf litter covers the ground at both quarry sites, although it is clear from the amount of visible quarry debris that Bald Mountain is the more intensively used of the two quarries (Figure 3.14).



Figure 3.14. Quarry debris seen through dense leaf litter at the Bald Mountain quarry, Orange County zone.

The potential for other quarry sites in this part of Orange County seems high, but reconnaissance of other hilltops within Duke Forest did not reveal more such sites.

Samples collected from the Bald Mountain quarry were taken from outcrop or large float boulders (FBL060-FBL062). Samples from 31Or549 also only included outcrop or boulder exposures rather than actual quarry flakes (FBL063-FBL065; Figure 3.15).

The material at both Bald Mountain and 31Or549 is a plagioclase-quartz porphyritic metavolcanic rock. While generally similar to porphyritic material from the Uhwarries zones, Orange County material shows a much higher phenocryst density.

Durham County

The Durham County zone is represented by six samples taken from a single large quarry site (31Dh703) in northwest Durham County (Figure B.10). Amateur archaeologist Joseph Moylan found this quarry. The rock from this quarry is spread out over a large ridge south of St. Mary's Road and immediately across from Cain's Chapel Church. The extent of the quarry is unknown, but it is potentially expansive, consisting of multiple quarry loci and outcrops along hills and ridges in the vicinity. Quarry debris is dense in places, with disturbed ground and tree throws revealing thick flake concentrations (Figure 3.16).

Phase 1 samples FBL047-FBL050 were taken from the slope near St. Mary's Road and further south on the ridge. These samples include both quarry flakes and float. Phase 2 samples FBL066 and FBL067 were collected by Miller, Stoddard, and Moore on a return visit in 2003. Samples were taken from a cleared area under a power line that crosses the quarry and from a large boulder in the woods near St. Mary's Road between two houses (Figure 3.17). The Phase 2



Figure 3.15. Brent Miller and Edward Stoddard collecting outcrop sample (FBL065) at site 31Or549, Orange County zone.



Figure 3.16. Dense quarry debris in upturned tree roots at site 31Dh703, Durham County zone.

samples were plotted precisely using a GPS unit; both rock outcrop (FBL067) and actual quarry debris (FBL066) were obtained.

The quarry debris includes a mix of crystal-lithic lapilli tuffs and tuffaceous sandstones, with some material resembling rocks from 31Ch729 (Chatham Pittsboro zone) and 31Pr115 (Person County zone).

Person County

The Person County zone is represented by six samples from a single quarry (31Pr115) (Figure B.11). This quarry was also identified by Joseph Moylan and is spread out over several small hills connected by a power line clearing. Quarry debris is lightly scattered along virtually the entire power line corridor, but it is concentrated in areas where the road intersects ridge tops (Figure 3.18). Heaviest flake debris concentrations are along the slope in eroded gullies and on the ridge in the vicinity of FBL069.

Phase 1 samples FBL043-FBL046 were collected primarily from areas along the road closest to the highest ridge. These samples lack precise GPS coordinates and consist of both quarry debris and float. Phase 2 samples FBL068 and FBL069 were collected by Miller, Stoddard, and Moore during a visit in 2003 and were precisely provenienced using a GPS unit. Phase 2 samples include both outcrop (FBL068) and float (FBL069). The float sample comes from an area of moderate quarry debris and consists of very fine-grained material that appears to have been flaked but may also reflect natural breakage. The outcrop sample comes from what appeared to be a vein of fractured, fine-grained material eroding out of the power line roadbed in an area with only light quarry debris evident.

The stone is highly variable in quality and includes both metamudstone and metasiltstone. Very little evidence of geologic outcrops was observed at the site, although large chunks of material exist as float within the eroded gullies.

Cumberland County

This zone is represented by six float samples of cobbles found near prehistoric sites along a relict coastal plain terrace of the Cape Fear River (Figure B.12). These rocks were presumably transported from their original sources by the Cape Fear, which contains numerous cobble and small boulder deposits of mixed metavolcanic and metasedimentary rocks washed or rafted down the river over millions of years (Thieme and Moore 2001). Although none of the Cumberland County samples come from quarry sites, the local abundance of cobble metavolcanics and proximity to Fort Bragg prompted their inclusion in this study.

Samples were selected for this study based on information from Kenneth Robinson and examination of local collections. In archaeological investigations, Robinson had encountered a coarse-grained greenstone occurring as cobbles and artifacts (Robinson 2005; Robinson and Terrell 2005a, 2005b). Local collections examined by the authors revealed the use of similar material near the river, particularly for large bifaces, axes, grinding stones, and nutting stones. Phase 1 samples FBL039-FBL042 are natural cobbles found by Robinson in his archaeological excavations at sites 31Cd400 and 31Cd424. Phase 2 samples FBL070 and FBL071 were collected by Moore and Irwin from the vicinity of 31Cd402 and 31Cd424 and were provenienced with the use of a GPS unit.



Figure 3.17. Boulder from which sample FBL067 was taken, Durham County zone.



Figure 3.18. Dense quarry debris on largest ridge at site 31Pr115 (near FBL069), Person County zone.

Petrographically a heterogeneous group, the Cumberland County samples were classified in the field as basalt, diorite, tuff(?), greenstone, metagabbro, and aplite. The last (FBL039) is a highly distinctive rock, white in color, that is either absent or very rare in local float deposits.

Artifacts

Nine artifacts were selected from different sites on Fort Bragg to be tested in the same fashion as the quarry samples (FBL072-FBL080; Table 3.2; Figures 3.19-3.20). In general, the sites from which these artifacts originated can be broadly characterized as ephemeral occupations or special activity loci typical of Sandhills archaeology. Most are multi-component, having been visited or occupied multiple times throughout prehistory. All of the sites represent upland settings along hills, ridges, or ridge noses overlooking or nearby small streams and seepage springs (Figure B.13).

Most sites were initially recorded in surveys involving limited surface collection of exposed areas across the installation (e.g., firebreak roads, drop zones). Some of the artifacts were found during large-scale surveys that included surface collection and/or systematic shovel testing, but FBL077 is the only specimen with a subsurface provenience. Five sites that were initially documented in a survey were revisited in subsequent survey or testing work. Artifact FBL080 was collected by an amateur archaeologist and is simply associated with a stream drainage.

Except for the few isolated finds, the tools were recovered with other artifacts, including stone tools, debitage, and/or pottery. In only one case, however, can a sampled artifact be reliably associated with other artifacts based on the context of recovery (FBL077).

The nine artifacts selected for study are all Savannah River Stemmed points, which date to the Late Archaic period (ca. 3000-1000 BC). These artifacts are large hafted bifaces with square stems and long triangular blades (Coe 1964). They range from 70 to 170 mm in length and 35 to 70 mm in width. They are similar to other Late Archaic bifaces of the Broadspear tradition that

Table 3.2. Fort Bragg Artifact Samples.

Sample	Site	UTM ^a		Rock Type	Artifact Type
		Northing	Easting		
FBL072	31Hk100	3890370	670080	dacite	Savannah River Stemmed point
FBL073	31Hk148	3890600	670270	dacite	Savannah River Stemmed point
FBL074	31Hk173	3891970	670560	dacite	Savannah River Stemmed point
FBL075	31Hk182	3891290	665200	andesite	Savannah River Stemmed point
FBL076	31Hk224	3895060	660730	tuff/siltstone	Savannah River Stemmed point
FBL077	31Hk737	3891053	664850	siltstone	Savannah River Stemmed point
FBL078	31Hk999	3880860	670910	dacite	Savannah River Stemmed point
FBL079	31Hk1408	3879599	665320	dacite	Savannah River Stemmed point
FBL080	Flat Creek	3891062	663638	dacite	Savannah River Stemmed point

^a NAD 1927 datum.

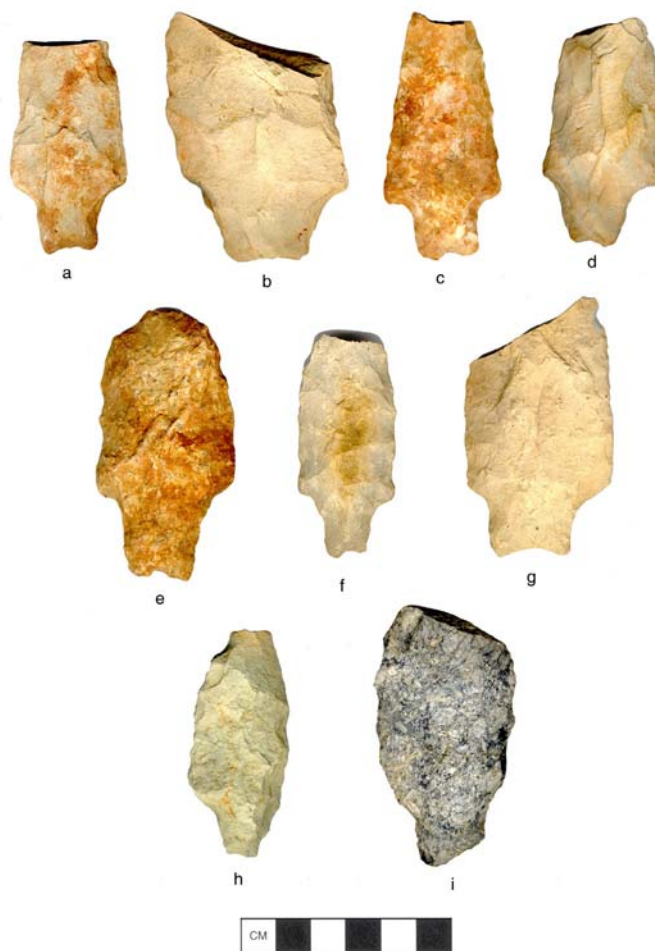


Figure 3.19. Artifacts used in this study, all Savannah River Stemmed points: a, FBL072; b, FBL080; c, FBL077; d, FBL076; e, FBL073; f, FBL079; g, FBL074; h, FBL075; and i, FBL078.

are often followed chronologically by smaller stemmed bifaces. Inferred functions for Savannah River Stemmed bifaces have included projectile points (spears or darts) and knives (Claflin 1931; Coe 1964; House and Ballenger 1976).

All of the bifaces are broken with transverse fractures occurring in the distal half or near the midsection of the blade. Four of these breaks are at oblique angles to the blade's long axis, and four are roughly perpendicular. Three bifaces exhibit step fractures while the others are amputations (Crabtree 1982). Fractures likely resulted from use of these bifaces as knives or projectiles. Artifact FBL073 was bifacially reworked after the blade fracture and may have served as a scraper prior to discard. Most of the bifaces exhibit some degree of asymmetry in the blade and shoulders that likely resulted from differential use and resharpening of blade edges.

Prior to thin-sectioning and geochemical analysis, multiple cast reproductions were made of each artifact, photographs were taken, and attribute and metric data were recorded (Appendix A). Only the distal portions (from the mid-blade to the fracture point) of the bifaces were utilized for petrography and geochemistry, preserving all or most of the diagnostic basal portions. A brief description of each artifact and its context is presented below.

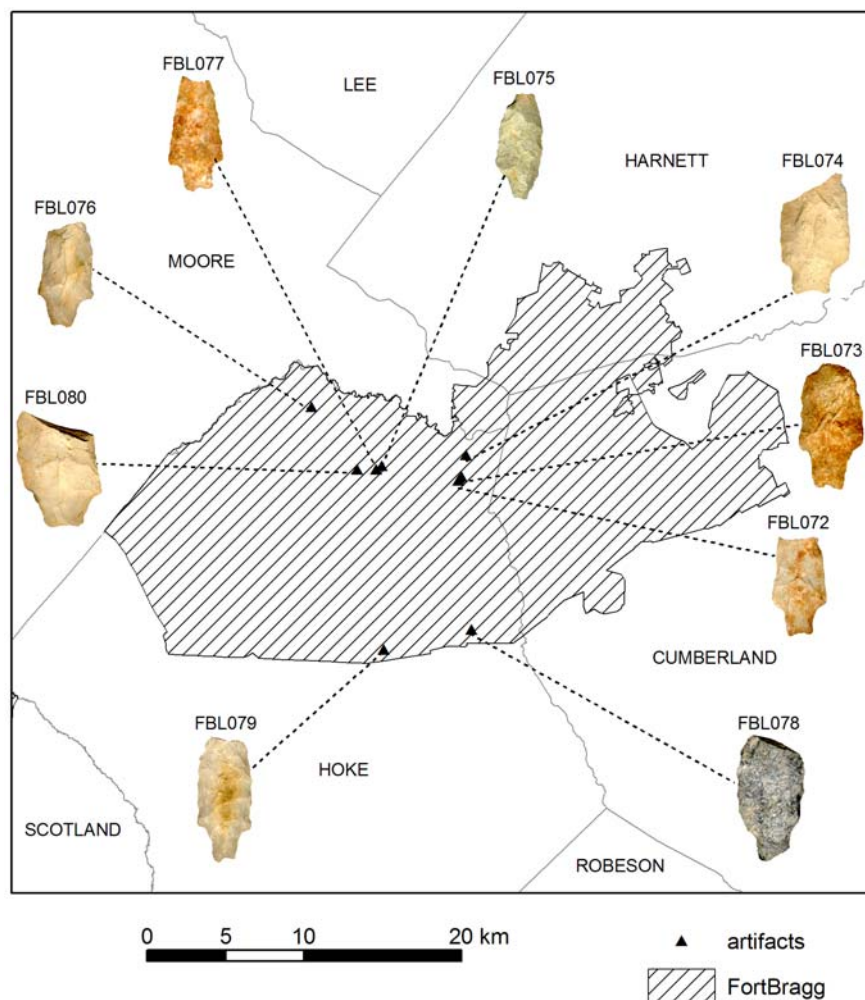


Figure 3.20. Artifact locations on Fort Bragg.

FBL072

FBL072 is a small Savannah River Stemmed biface with a roughly square stem and slightly concave base. Among the more symmetrical specimens, it has oblique or “raised” shoulders of similar width and fairly straight blade margins. The biface has a plano-convex cross-section influenced by a resistant longitudinal ridge on one blade face. The blade exhibits random percussion flaking with some retouch along the edges. The distal portion of the blade exhibits a transverse fracture. The material was identified in hand specimen as aphyric metavolcanic stone with a pale to moderate yellowish-brown patina and was considered generally similar to aphyric Carolina Slate Belt quarry samples.

This artifact was found at site 31HK100, located in the northern portion of Sicily Drop Zone on a flat, broad interfluvial landform. During the initial surface collection, Early Archaic, Middle Archaic, and Late Archaic bifaces were found along with debitage, three blades, and a Woodland sherd (Loftfield 1979). Subsequent survey produced additional debitage and a Middle Archaic biface (Trinkley et al. 1996b).

FBL073

This large Savannah River Stemmed biface has a long square stem and slightly concave base. The shoulders are asymmetrical, with one oblique and one with a shallow notch. The stem is well formed through retouch along the edges, but the blade is only roughly shaped through random percussion, and one margin is incurvate while the other is excurvate. The blade has a biconvex cross-section. The biface was broken in the distal portion and subsequently reworked bifacially. The material was identified in hand specimen as quartz and plagioclase porphyritic metavolcanic stone with a dark-yellowish-orange patina. It was considered generally similar to Carolina Slate Belt samples.

FBL073 was recovered from site 31HK148 in the central portion of Sicily Drop Zone on a ridge nose between two first-order streams. The Savannah River Stemmed biface was collected along with a Middle Archaic biface (Guilford type), a retouched flake, and debitage (Loftfield 1979). Subsequent survey by Trinkley et al. (1996b) produced additional debitage, undiagnostic hafted bifaces, and a Woodland sherd.

FBL074

This artifact is a large Savannah River Stemmed biface with a square stem, concave base, and oblique shoulders that are slightly asymmetrical. The blade is thin and biconvex, nearly flattened, and appears to have been shaped through random percussion with retouch along the margins. The blade edges are roughly straight, tapering towards the tip. The biface has a transverse break just beyond the midsection. In hand specimen, the material was identified as quartz and plagioclase porphyritic stone with a thin, light-bluish-gray patina. It was considered generally similar to Carolina Slate Belt samples.

This artifact comes from site 31HK173 in the northeastern area of Sicily Drop Zone along the edge of a flat interfluvial ridge overlooking the Jumping Run Creek drainage. In the initial survey, this biface was collected along with three scrapers (including an end scraper), a core, bifaces, and debitage (Loftfield 1979). Subsequent survey produced debitage, a biface fragment, and a scraper (Trinkley et al. 1996b).

FBL075

A Savannah River Stemmed type assignment is questionable for this artifact. It has a small, narrow stem, is poorly made, and exhibits great asymmetry. One half of the biface has a shoulder at an oblique angle to the stem while the other half lacks a stem-to-blade transition. The latter blade margin has been reduced or thinned to a maximum extent, terminating at a thick longitudinal ridge, which contributes to a plano-convex cross-section. The opposite blade edge is only roughly shaped through random percussion. The distal tip is removed. The material is a coarse-grained, aphyric metavolcanic material with a patinated grayish-green color. It was originally selected because it resembled the material sampled from Cumberland County.

This artifact was found at site 31HK182, located in northwestern Normandy Drop Zone on the north slope of a hill. The biface was collected along with another biface, a scraper, and debitage (Loftfield 1979). Subsequent survey, primarily surface collection, produced a quartz debitage scatter, a biface, biface fragments, and a Woodland sherd (Braley 2000).

FBL076

This small Savannah River Stemmed biface has a square stem, slightly concave base, and distinct but asymmetrical shoulders. A small, relatively reduced shoulder lies at the base of the incurvate blade margin, while a more pronounced shoulder occurs on the opposite, excurvate blade edge. The blade exhibits percussion flaking and minimal retouch, primarily unifacial. The distal portion has a transverse break at an oblique angle to the blade. It has a relatively thick biconvex cross-section influenced by a longitudinal ridge along one face. The material was identified in hand specimen as aphyric metavolcanic stone, lightly weathered yellowish gray and grayish orange, and thought to be generally similar to Carolina Slate Belt samples.

FBL076 was an isolated find recorded as site 31HK224. It was located on a hilltop at the headwaters of an unnamed tributary of the Lower Little River (Loftfield 1979). A subsequent survey recovered no additional materials in this particular area (Ruggerio 2005).

FBL077

This Savannah River Stemmed biface is beautifully made, small, and has a square stem and slightly bifurcated base. The shoulders show only minor asymmetry and are roughly perpendicular to the stem. The thick biconvex blade has symmetrical, straight edges and exhibits random percussion flaking with minimal retouch. The biface has a transverse snap towards the distal end. The material was identified in hand specimen as aphyric metavolcanic material with a grayish-orange patina. It was considered generally similar to Carolina Slate Belt samples.

The artifact was recovered from site 31HK737, which is located along a distinct ridge toe adjacent to a seepage spring just west of Salerno Drop Zone. The initial survey (Idol 1999) and subsequent testing (Irwin 1999) along the low ridge revealed evidence of several occupations dating to the Middle Archaic (Guilford), Late Archaic, and Woodland periods. FBL077 was recovered in a test unit along the center of the ridge with no apparent overlap of Woodland or Middle Archaic deposits. The test unit also yielded debitage and several tools including a retouched flake, a utilized flake, at least five biface fragments, and a freehand core. Assuming contemporaneity of these deposits, the fairly substantial and diverse range of discarded tools and debitage suggests at least a temporary residential camp.

FBL078

This specimen is a large, poorly crafted or early-stage Savannah River Stemmed biface. The original stem was likely square, but one basal corner has been removed and the stem subsequently retouched. The biface has weak, oblique shoulders and excurvate blade margins. It exhibits random percussion flaking with little or no retouch. The cross-section is biconvex, and the biface has a transverse fracture near the midsection in the distal half of the blade. In hand specimen the material was identified as a possible breccia with a light-bluish-gray patina. It was selected for its unusual appearance and possible similarity to the Chatham Silk Hope quarry samples.

FBL078 was an isolated find recorded as 31HK999 on St. Mere Eglise Drop Zone in a flat upland area in the Puppy Creek drainage (Braley 2000).

FBL079

This slim, small Savannah River Stemmed biface has a slender, square stem and slightly concave base. The shoulders are distinct and roughly perpendicular to the stem, and the blade is symmetrical with gently excurvate margins. Percussion flaking appears to be collateral. This well-made biface has a biconvex cross-section and was snapped towards the distal end. The material was identified as plagioclase porphyritic metavolcanic stone, weathered with a yellowish-gray to grayish-orange patina, and thought to be generally similar to Carolina Slate Belt samples.

The artifact was recovered during a surface collection at site 31HK1408 on an upland flat between Nicholson Creek and McDuffy Creek drainages. Only a few flakes were found with it.

FBL080

The final specimen is a large Savannah River Stemmed biface with a short, square base and a broad blade. One shoulder is pronounced while the other is smaller and less notable as the stem transitions to an excurvate blade. The opposing blade edge that ascends from the distinct shoulder is incurvate, perhaps indicative of a knife function. This biface has a transverse oblique fracture near the biface midsection. The material was identified in hand specimen as aphyric metavolcanic stone with a grayish-orange patina. It was considered generally similar to Carolina Slate Belt samples.

FBL080 was collected around 1960 in the vicinity of Flat Creek by Col. Howard MacCord. A more exact provenience is not known, nor is it known if this biface was associated with other artifacts at the time of discovery.

Acknowledgments

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