stone-pipe production and use than the ties that bound the enslaved to Jefferson.

It is intriguing that evidence of stone pipes was found in association with enslaved African Americans, a white artisan's household, and free blacks. If stone-pipe production was regional, this may indicate that using a stone pipe was associated with class. If stone-pipe production was limited to a few individuals or a particular social group, that would suggest social relations between these social groups. Further research into historic stone-pipe production, distribution, and use will help define the geographic boundaries of pipe production and the social boundaries involved in the use of stone pipes.

Notes

1. Ellen Randolph to Martha Jefferson Randolph, August 24, 1819, Coolidge Papers, Accession #9090, Albert and Shirley Small Special Collections Library, University of Virginia, Charlottesville, Virginia.

2. John Hemings to Thomas Jefferson, November 29, 1821, Coolidge Collection of Thomas Jefferson Manuscripts, Massachusetts Historical Society, Boston, Massachusetts.

8

Social Dimensions of Eighteenth- and Nineteenth-Century Slaves' Uses of Plants at Poplar Forest

JESSICA BOWES AND HEATHER TRIGG

Poplar Forest's extensive program of macrobotanical sampling and analysis over the last fifteen years has provided a wealth of data about the plantation's enslaved peoples (Bowes and Trigg 2009; Heath 2008b; Raymer 1996, 2003). Macrobotanical remains recovered from the areas that slaves occupied allow us to explore the complexities of the slaves' use of plants throughout the history of Poplar Forest as a working plantation. Plants played a prominent role in the slaves' lives as food, as utilitarian items like brooms or floor mats, as medicine, as fuel, and perhaps in rituals. Archaeobotanical remains thus provide a window into the lives of the enslaved community (Heath 2001; Mrozowski, Franklin, and Hunt 2008). Choices made by and for slaves regarding their diet and subsistence went beyond mere caloric satisfaction and were imbued with social relations of power and resistance (Gibbs et al. 1980; McKee 1999; Mrozowski, Franklin, and Hunt 2008). Slaves' diets reflect, in part, negotiation between slaves and plantation owners as well as the owners' management decisions. We can use archaeobotanical remains to explore the social context in which the enslaved African Americans and owners of Poplar Forest operated. Changes in plantation management during the tenure of two owners, Thomas Jefferson and Edward Hutter, reflect the shifting attitudes towards slavery in colonial and antebellum society and the economic pressures facing owners.

These social relationships were set within a changing environmental context as plantation grounds were landscaped and agricultural fields were cleared, planted, and abandoned. Jefferson was well known for agricultural experimentation and landscaping, including the introduction of ornamental and useful plants to Poplar Forest (Betts 1944, 1987; Jones 2002; Raymer 1996, 2003; Trussell 2000). Throughout the eighteenth and nineteenth centuries, Virginia's farmers struggled to maintain the fertility and productivity of their lands as cash crops

stripped vital nutrients from the soil (Nelson 2007). Plantation owners coped with depleting soil fertility by diversifying their crops (Proebsting this volume; Sanford 1994, 128), and they implemented these farming practices using the labor of enslaved African Americans, engaging the slaves in the changing environment.

Changing trends in the treatment and management of slaves may be visible in how owners provisioned slaves and how slaves provisioned themselves (Bowes 2009; Heath 2004a; McKee 1999; Mrozowski, Franklin, and Hunt 2008). The habitats at Poplar Forest, which include the grounds around the plantation buildings, agricultural fields, slaves' gardens, managed lawns, forests, and successional fields, provided slaves and owners with a variety of plant resources. We focus on the macrobotanical remains recovered from features associated with slaves' cabins (Bowes 2009; Bowes and Trigg 2009; Heath 2008b; Raymer 1996, 2003) and use the botanical materials as indications of slaves' subsistence activities. We explore the range of habitats enslaved people used as an indication of the ways they met their subsistence needs. These different habitats represent variations in the slaves' control and mobility, but they may also provide information about how Poplar Forest's slaves were treated throughout the eighteenth and nineteenth centuries.

Historical and Environmental Contexts

Thomas Jefferson and his wife, Martha Wayles Skelton Jefferson, inherited the 5,000-acre Poplar Forest from her father in 1773. Along with the property, the Jeffersons also received 135 enslaved African Americans, who formed the core of the enslaved work force at Poplar Forest over the five decades of Jefferson's occupation (Heath 1999b; Heath et al. 2004; Heath this volume). Jefferson was largely absent during the earliest period of ownership, when he relied completely on overseers to manage the land and slaves. Jefferson became more active in the administration of the plantation during and after the construction of the main house from 1806 through 1810 (Heath 2004c). Although he did not visit Poplar Forest regularly until 1810, the home's construction did elicit increased concern for the management of Poplar Forest. Once the mansion was finished, the estate remained Jefferson's retreat property, a place he visited periodically.

Jefferson died in 1826 and his grandson, Francis Eppes, inherited Poplar Forest along with thirteen slaves. In 1828 Eppes sold the 1,075 acre plantation to William Cobbs before relocating his own family to Florida. Although most of Eppes's slaves moved with his family, it is possible that a few of his slaves were included in the sale of the plantation to William Cobbs. Although Cobbs had stopped managing the plantation by the 1840s, he lived at Poplar Forest with his wife, daughter, and son-in-law, Edward S. Hutter, until his death. Edward Hutter took over managing Poplar Forest for Cobbs in 1842 to well beyond 1865, when slavery was abolished (Chambers 1993, 178–179; Heath et al. 2004; Lee 2008). Each owner (and manager, in the case of Hutter) added slaves to the community already established at Poplar Forest and sold and moved others. This created almost two decades of frequent additions to—and losses from—the slave community, which had to adjust repeatedly to the instability (Heath et al. 2004).

Poplar Forest is located in a mixed southern hardwood forest, and the area around the plantation supported stands of old-growth oak, chestnut, and hickory before Anglo Americans settled in the area. Virginia's piedmont contained a large variety of hardwood species that included beeches and tulip poplars. Sycamores, elms, maples, and box elders grew along rivers (Gemborys 1974). The understory contained a diverse array of small trees and shrubs that included dogwoods, rhododendrons, and blueberry bushes. Before Anglo American settlement, Native peoples used fire to clear lands for hunting and agriculture (Druckenbrod and Shugart 2004), and the vegetation may have adapted to fire to some extent. While Native peoples' use of fire and their agricultural activities may have structured vegetation communities (Delcourt and Delcourt 1997), by the mid-eighteenth century, the area was largely an anthropogenic landscape (Nelson 2007; Proebsting this volume).

Before Jefferson arrived, Poplar Forest lands were under tobacco cultivation for about a decade, and the soils may have already been negatively affected. Some farmers' attempts to amend similarly depleted soils made problems worse (Nelson 2007). Changes in soil fertility and chemistry encouraged certain weeds that were more tolerant of extreme environmental conditions than most native vegetation or crops. When productivity was severely compromised, fields were abandoned. These areas underwent ecological succession, which provided a dynamic habitat. Ruderal plants and those adapted to lower fertility were first to grow, then grasses, then light-tolerant shrubs, and eventually small trees such as red cedars and pine (Druckenbrod and Shugart 2004). Disturbed areas and lands undergoing succession provided a variety of plant communities. Some successional areas may have included portions of the plantation core; one area, the Quarter Site, was thought to be located on an abandoned field (Heath 2004c).

Documents, archaeology, and palynology have revealed that Jefferson actively managed the curtilage, which comprised the ten-acre core area of the plantation along with fifty-one acres surrounding the core (Jones 2002; Trussell 2000). In addition to physically modifying the land, he installed new decorative and useful plants. Ornamental trees such as Lombardy poplars, paper mul-

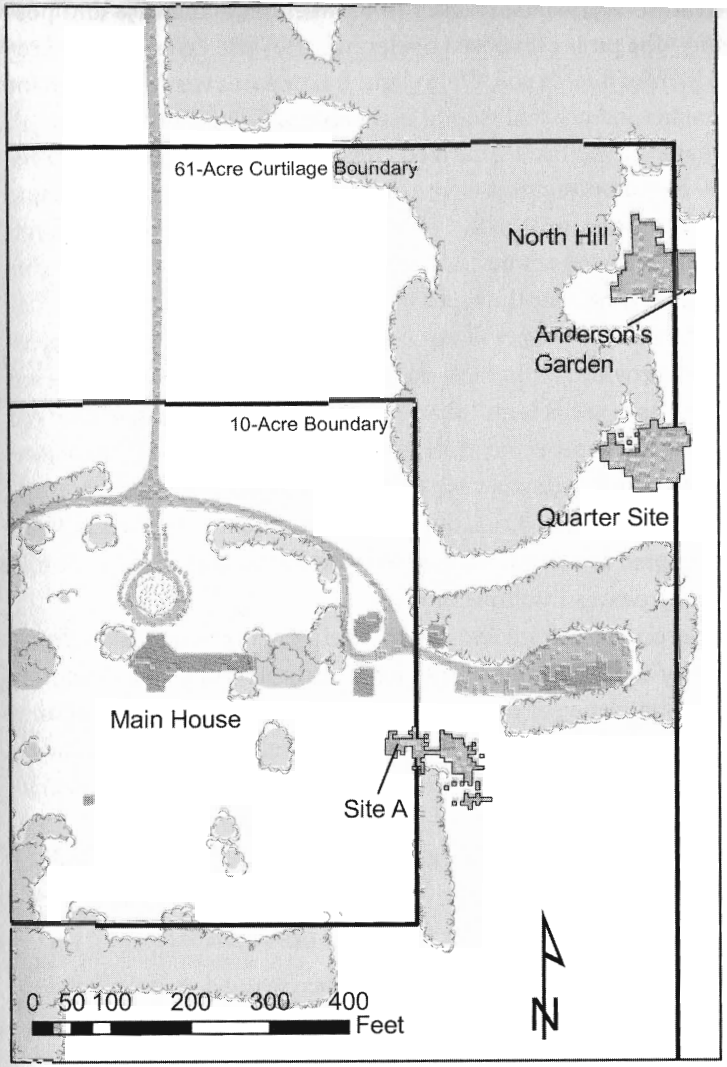
berries, and additional tulip poplars were planted. Jefferson also ordered the planting of fruit trees in the nursery, orchards, and kitchen garden. Ornamental flowering shrubs such as lilacs and roses and ornamental herbs such as lilies and tulips were grown in pleasure grounds. Kitchen produce, small vegetables, and fruits such as strawberries were grown in vegetable gardens. The curtilage also housed plantation outbuildings, the main house, and some slave quarters and their gardens. These highly disturbed areas supported a variety of ruderal plants—those encouraged by human activities and disturbance—in addition to the desired plants in lawns and gardens.

Outside of the immediate area of the plantation core (but most likely within the curtilage), orchards of peaches, cherries, and apples were grown. Beyond the curtilage lay the plantation's agricultural fields, where cash crops of wheat and tobacco as well as crops intended for use on the plantation were planted, tended, and harvested by the slaves. During Jefferson's time, flax, hemp, and cotton were grown sporadically to provide fibers for clothing (Betts 1987, 247–254; Raymer 2003). Fertility of the soil was always a problem with these types of crops. A common method of maintaining soil fertility was to rotate grains such as maize and wheat with a green manure such as clover or alfalfa (Nelson 2007), and Jefferson discusses these types of rotation regimes in his farm journal (Betts 1987, 310–319).

While Hutter was not as adventurous as Jefferson in his landscaping ambitions, he maintained Poplar Forest as a working plantation with fields of wheat and other crops.[1] Beyond the plantation's core and its active and abandoned agricultural fields lay forest margins and then forested areas that housed a variety of nut trees as well as useful understory plants. This patchwork of habitats was the source of plants that were useful to the slaves and provided food, firewood, medicine, and utilitarian items.

Archaeological Contexts and Archaeobotanical Analysis

The macrobotanical remains from three areas associated with slaves' dwellings have been analyzed: the North Hill quarter and Anderson's Garden, the Quarter Site, and Site A (map 8.1). Wingos quarter has been sampled but has not yet been analyzed (Breen and Heath 2010). The North Hill Site (Heath 2004b) is divided into two phases. Phase 1 dates from 1770 to the mid-1780s and includes a subfloor pit, several short trenches, an exterior pit, and the deepest layers of an erosion gully. This phase corresponds to the early period, from 1770 to 1785, before Jefferson's investment in the plantation house and grounds (ibid.). Phase 2, dating from 1790 to 1810, includes the upper fill of the gully, narrow trenches, and another exterior pit. Nearby is the Anderson's Garden site, where a possible



Map 8.1. Poplar Forest sites where samples have been taken for macrobotanical analysis.

subfloor pit that may or may not be related to the North Hill occupation was sampled for macrobotanicals.

A second slave living area is the Quarter Site, which dates from 1790 to 1812 (Heath 1999b, 2004c; McDonald 2000). A variety of features were excavated, including several structures, subfloor pits, post molds, and the remnant of a midden. Raymer (1996, 2003) analyzed the macrobotanical remains from the Jefferson-period areas.

Site A, which dates to the period when the Hutters owned the plantation, includes a slave cabin with a stone-filled feature that has been interpreted as a chimney base and a subfloor pit that is three feet by three feet (Heath et al.

2004). The pit (feature 2352R-DD/4) dates to between 1840 and 1858 and possibly as late as 1865. The pit is composed of eleven lenses and layers, which produced about 300 liters of floated soil. Of 123 light fractions, 61 were examined for charred plant remains and charred wood (Bowes 2009; Bowes and Trigg 2009).

The plant remains at the three analyzed sites were collected using two recovery strategies. Flotation samples were taken from most contexts, but some samples from the Quarter and North Hill sites were water-screened through 1/16-inch (1.6 mm) mesh (Heath and Lee 2008; Raymer 1996). While the differences in techniques may alter the types of seeds collected (in the latter technique, seeds smaller than 1.6 mm will not be recovered), the flotation samples from these two sites provide comparable data. In addition, most taxa recovered in the float samples have seeds larger than 1.6 mm. Large numbers of charred and uncharred seeds were recovered at all three locations. Because of preservation conditions (Miller 1989; Raymer 1996), the uncharred seeds were considered to be recent contaminants. Thus, our discussion focuses on charred plant parts. Raymer attempted to identify all charred wood greater than 2 mm, while Bowes identified a 25-piece subsample of wood.

Because the taxa recovered from features may relate to how that feature functioned, we used only the data from subfloor pits, external pits, and structures that provide the best evidence of domestic plant use and comparability among sites. We also chose these features because they typically contained the widest variety and highest density of plant remains. The North Hill features analyzed here are the subfloor pit (feature 1546) and an exterior pit (feature 1476). The Quarter Site features consist of Structure 2 (feature 1206) and one subfloor pit (feature 829) associated with Structure 1. Plant remains relating to Hutter's slaves come from the subfloor pit in Site A (feature 2352R-DD/4).

Jefferson-Era Contexts

A wide variety of plants constitute the botanical remains from the North Hill Site: nutshells and nutmeats, cultivated grains, fruit (both wild and cultivated), edible and medicinal herbs, weeds, and charred wood. Raymer (2003) found 796 seeds and related plant parts from earlier Phase 1 features and seventy-two seeds and related plant parts from later features. Overall, the North Hill assemblage includes thirty-nine taxa of seeds and fruit and twenty-one taxa of wood. Plant remains from Anderson's Garden were from a smaller number of taxa but included domesticated fruit, maize, millet, nutshell, and a few weeds and grasses; the most notable plant remain was a large number of peach pits (ibid.). From the Quarter Site, Raymer (1996) found twenty-one taxa of seeds and fruit and four taxa of wood. Below, we examine the taxa recovered from the features we analyze further (tables 8.1 and 8.2).

Table 8.1. Seeds and fruits identified from archaeological remains at Poplar Forest slave quarter sites

Common Name	Scientific Name	North Hill		Quarter Site		Site A/Hutter
		1546	1476	829	1206	ER2353/4
Acorn	*Quercus sp.*		X			X
Amaranth	*Amaranthus sp.*	X				
Aster family	Asteraceae	X				
Bean	*Phaseolus sp.*		X			
Bean family	Fabaceae					X
Bedstraw	*Galium sp.*	X			X	
Blueberry	*Vaccinium sp.*					X
Carpetweed	*Mollugo sp.*	X				
Chenopod family	Chenopodiaceae					X
Cherry	*Prunus sp.*			X		X
Cinquefoil	*Potentilla sp.*					X
Cocklebur	*Xanthium sp.*					X
Corn	*Zea mays*	X	X	X	X	X
Dock	*Rumex sp.*	X				
Elderberry	*Sambucus sp.*	X				X
Fanpetals	*Sida sp.*	X				
Foxtail	*Setaria lutescens*					X
Goosefoot	*Chenopodium sp.*	X			X	
Goosegrass	*Eleusine sp.*	X				
Grain		X			X	
Grape	*Vitis sp.*	X		X		X
Grass family	Poaceae	X			X	X
Ground Cherry	*Physalis sp.*					X
Hazelnut	*Corylus sp.*					X
Hickory	*Carya sp.*	X	X	X		
Huckleberry	*Gaylussacia sp.*				X	
Jimsonweed	*Datura stramonium*	X				X
Knotweed	*Polygonum sp.*	X			X	X
Mallow family	Malvaceae					X
Medick/clover	*Medicago sp.*					X
Millet	*Panicum miliaceum*					X
Mint	*Mentha sp.*					X
Nightshade	*Solanum sp.*	X				X
Oat	*Avena sativa*	X				
Panicgrass	*Panicum sp.*					X
Paspalum	*Paspalum sp.*					X
Peach	*Prunus persica*	X		X	X	X
Persimmon	*Persimmon sp.*		X	X		
Pink family	Caryophyllaceae					X
Plantain	*Plantago sp.*					X
Poppy	*Papaver sp.*	X				
Privet	*Ligustrum vulgare*					X
Purslane	*Portulaca sp.*	X				X
Ragweed	*Ambrosia sp.*	X				
Raspberry	*Rubus sp.*	X			X	X
Rose family	Rosaceae					X
Rye	*Secale sp.*	X				
Ryegrass	*Lolium sp.*					X
Sedge	*Carex sp.*					X
Sorghum	*Sorghum sp.*	X				X
Sorrel	*Oxalis sp.*					X
Strawberry	*Fragaria sp.*	X				
Sumac	*Rhus sp.*	X				
Sunflower	*Helianthus sp.*		X		X	
Vervain	*Verbena sp.*	X				
Violet	*Viola sp*	X				
Walnut	*Juglans sp.*			X		X
Walnut family	Juglandaceae	X	X			
Watermelon	*Citrullus lanatus*					X
Wheat	*Triticum sp.*	X			X	X
Wheatgrass	*Agropyron sp.*	X				

Table 8.2. Wood species identified from archaeological remains at Poplar Forest slave quarter sites

Common Name	Scientific Name	North Hill		Quarter Site		Site A/Hutter
		1546	1476	829	1206	ER2353/4
Ash	*Fraxinus sp.*					X
Beech	*Fagus sp.*	X	X			
Birch	*Betula sp.*	X				X
Black Locust	*Robinia pseudoacacia*	X	X			X
Chestnut	*Castenea sp.*					X
Dogwood	Cornus sp.		X			
Elm	*Ulmus sp.*				X	X
Hickory	*Carya sp.*	X	X	X	X	X
Hophornbeam	*Ostrya sp.*	X	X			
Maple	*Acer sp.*		X			X
Oak	*Quercus sp.*	X	X	X	X	X
Pine	*Pinus sp.*	X	X	X	X	X
Red Mulberry	*Morus rubra*				X	
Red Oak	*Quercus rubra*	X	X			X
Sycamore	*Platanus sp.*	X	X			
Tulip Poplar	*Liriodendron tulipifera*					X
Walnut	*Juglans sp.*		X			X
White Oak	*Quercus alba*	X	X			X

Early Jefferson Era

From the earliest subfloor pit (feature 1546) at the North Hill Site, Raymer (2003) found a variety of cultivated grains: indigenous maize; European-introduced wheat, oats, and rye; and sorghum, a grain introduced from Africa that was typically associated with African slaves. The maize remains include kernels used for food and cob fragments (cupules) that were possibly used as fuel. Fruit remains include peach pits, which were probably cultivated in plantation orchards, and seeds from raspberry, elderberry, grapes, and sumac, which were probably gathered from forests, edge zones, or successional fields. Strawberry seeds were also recovered and may have come from slaves' personal gardens or from plants growing wild in the area. There were a number of seeds from plants that were probably consumed as greens (Raymer 1996) including amaranth, bedstraw, knotweed, and purslane. The small quantity of nutshells includes hickory and walnut. Seeds from possible medicinal plants include poppies, violets, and jimsonweed. Also recovered were seeds from weeds that were probably not deliberately used: copperleaf, nightshade, ragweed, and prickly mallow. These seeds probably represent accidentally charred seeds brought in from the local environment rather than seeds that were gathered intentionally. The charred wood recovered from flotation samples indicates a variety of hardwoods that were used as fuel, including oak, hickory, beech, basswood, elm, and sycamore.

Later Jefferson Period

The later external pit from North Hill (feature 1476) contained fewer taxa. Raymer (2003) found cultigens such as beans and maize kernels and cupules. Gathered resources include acorns, hickory nutshells, and sunflower seeds. There were fewer types of fruits (persimmon), edible weedy plants, and weeds than in the earlier deposits, but there was a variety of types of charred wood. The smaller number of taxa in these features may relate to the function of the feature rather than to differences in plant use between the early and late deposits of this area.

The Quarter Site contained the remains of several slave dwellings. In a subfloor pit (feature 829), Raymer (1996) found the seeds of a variety of subsistence items: edible herbs, medicinal plants, and seeds from crops and weeds. Some edible taxa were crops, but others may have been garden weeds that were tolerated because they were useful as food, medicine, or other utilitarian products. Grains include maize, millet, and wheat, a mix of European-introduced cereals and Native American domesticates. Some cultigens may have come from slaves' gardens, but they may also have been planted in the plantation's fields.

Some of the seeds came from plants that probably were consumed as greens, including amaranth, bedstraw, goosefoot, purslane, and smartweed. These weedy plants were perhaps tolerated in gardens but certainly could have been found in disturbed areas around buildings, fences, and large plantings. Cultivated fruit include cherry, peach, and perhaps persimmon, while raspberry and huckleberry were probably gathered. Gathered wild foods include sunflower, goosefoot, smartweed, and a variety of nuts. Some plants were useful as medicine, and some seeds may relate to plant parts that had utilitarian uses—grass stems and leaves for matting, lining pits, and basketry. A small variety of wood including elm, some hickory, oak, and a relatively large amount of pine was recovered; oak was the predominant variety. Many plants in the assemblage may have served multiple uses. For example, maize kernels were used for food, but the cobs may have been burned for fuel; persimmons may have been planted both for their edible fruit and as ornamentals; and violets may have served as ornamentals but also could have been used for medicine or eaten.

Hutter-Era Context

From the sixty-one analyzed light fractions from the subfloor pit a total of 2,316 seed remains, 455 plant remains, and 1,525 pieces of wood were collected and examined (Bowes and Trigg 2009). Botanicals recovered from the pit relate to food consumption, medicinal practices, domestic uses of plants, and fuel

use. The range of plants includes edible fruit, field and garden crops, weeds, nutshells, and wood. The fruit seeds and pits identified are a combination of domestic and wild fruit that includes cherry, raspberry, peach, grape, watermelon, elderberry, and blueberry. Plantation crops include wheat and corn, but the slaves also grew corn[2] and possibly sorghum and millet in their own gardens (Leighton 1986, 203; Prance and Nesbitt 2005, 50, 57). Knotweed, purslane, mint, plantain, and jimsonweed are just some of the plants that represent various weedy plant species that may have been used for food or medicine. These plants can thrive in disturbed environments and waste areas and may have been tolerated in slaves' gardens. Acorns, walnuts, and hazelnuts were likely gathered from the local woods. In every sample analyzed, an unknown charred organic material was present. The material is amorphous and ranges in size from greater than 2 mm to less than 0.5 mm. There is a strong similarity between the unknown tissue in the sample and charred potatoes, although it cannot be definitively identified. The wood fragments examined were primarily hardwoods, mainly oak and chestnut, with only a small amount of pine and other unidentifiable softwoods.

These features span the period from Jefferson's years at Poplar Forest to the time when the Hutters owned the plantation. Thus, the period includes slave life from the final decades of the eighteenth century until the end of the Civil War. The features allow for an examination of changing slave subsistence practices and management strategies.

Slaves' Use of Plants and Habitats

The botanical remains recovered from the different periods make clear that a wide variety of plant taxa were used to sustain the slave community. Owners provided staple grains and perhaps some fruit, but slaves grew food in their own gardens. They also supplemented their diets and obtained medicine from wild plants growing in disturbed areas around the plantation core. Forests, forest margins and successional fields were sources for edible fruit, nuts, and especially fuel wood, a crucial part of food preparation.

While the botanical remains indicate that a variety of areas around the plantation provided subsistence items, we cannot use the quantities of a particular taxon as a direct indication of its importance because the recovery of botanical remains is strongly influenced by accidental preservation. For example, we cannot determine if slaves' garden crops contributed more to their diets than food from the plantation's fields. We can, however, examine changes in number of plant foods and the proportions of seeds coming from various areas around the plantation to explore changes in slaves' diets.

Table 8.3. Taxonomic richness of seeds and fruits recovered from various sites at Poplar Forest

Site	Location	Type of Feature	Number of Species	Number of Genera	Number of Families	Total Richness
1546 A-G	North Hill	Subfloor pit	4	25	3	32
1476 B-D	North Hill	Exterior pit	1	5	1	7
829	Quarter Sit	Subfloor pit	2	5	0	7
1206	Quarter Site	Structure	2	8	1	11
2352R-DD/4	Site A (Hutter)	Subfloor pit	6	25	6	37

Examining the number of different foods in the diet (diet breadth) is one way to investigate trends in slaves' subsistence practices. This method allows us to indentify suggestions of nutritional stress. For this analysis we use the taxonomic richness of the assemblages to estimate diet breadth. We compare the number of plant taxa recovered (richness) at various taxonomic levels (specific, generic, and family) in contexts dating to the various owner occupations: early and late Jefferson era and Hutter era.

The richness (table 8.3) of the slaves' diet is highest during Jefferson's early years and during Hutter's occupation and lowest when Jefferson was having the main house constructed and during the earliest years of his regular visits to the property. The species richness assessment was confirmed with a more rigorous ecological model, the Shannon-Wiener Diversity Index. Interpreting richness is difficult, especially in terms of its meaning for diet and subsistence. Increasing richness and increasing diet breadth is typically interpreted as an indication of increasing effort to obtain food (Nagaoka 2001). In plantation contexts, an increase in the variety of foods is usually taken to mean that slaves were supplementing their diets because the food provided by owners was insufficient (McKee 1999; Mrozowski, Franklin, and Hunt 2008). However, in the context of slavery, the foods consumed may be limited not only by the managers' decisions about the types and quantities of rations that were provided but also by restrictions on slaves' mobility and time and ultimately their ability to obtain or produce their own food. Thus, richness and diet breadth may not be a clear indication of the adequacy of slaves' diets or landowners' consideration for their needs.

To better understand the changes in the slaves' diet apparent in the differing taxa richness, we looked at the habitats the slaves were using. We grouped the plant food remains according to the area around the plantation where the plant could be found (table 8.4). Plantation crops are plants that were cultivated in the fields and orchards; garden plants are wild and domestic foods from slaves' gardens; and ruderals are gathered from highly disturbed areas around the plantation's fields and buildings. We assumed that forest margins, edge zones,

Table 8.4. Locations at Poplar Forest where seed and fruit taxa recovered from slave households are found

Plantation Crops	Garden Plants	Ruderals	Forest Margin	Forest
Bean	Amaranth	Bedstraw	Elderberry	Acorn
Corn	Corn	Carpetweed	Hazelnut	Blueberry
Oats	Goosefoot	Cocklebur	Huckleberry	Grape
Peach	Ground cherry	Dock	Raspberry	Hickory
Persimmon	Jimsonweed	Knotweed	Sumac	Walnut
Rye	Millet	Plantain		
Wheat	Mint	Sorrel		
	Nightshade	Violet		
	Poppy			
	Purslane			
	Sorghum			
	Strawberry			
	Sunflower			
	Vervain			
	Watermelon			

and successional areas provided foods such as raspberry, elderberry, and sumac. Finally, the mature forest was the source of most types of nuts and grapes.

We compared the proportion of plants coming from each of the areas to look for changes over time (figure 8.1). The proportion of plants that came from the plantation core is highly variable, as is the proportion of plants from the mature forest. Some of this variability may relate to size of the assemblage because the number of seeds recovered is relatively small in feature 1476. However, the contexts that have a large number of seeds suggest that the use of ruderal plants from disturbed areas around the plantation remained constant throughout the Jefferson and Hutter occupations but that the use of forest plants was variable across all time periods. The proportion of crops from plantation fields and orchards appears to be stable during both the early and later Jefferson periods, but it decreased significantly during Hutter's occupation. This suggests that during the Jefferson era, provisioned rations played a greater role in the slaves' diets than they did later on. During Hutter's tenure, the increased proportion of plants coming from slaves' gardens and forest margins offset the reduced proportion of crops.

The increased use of forest margin plants during Hutter's occupation may be due to several factors, one of which is habitat change because of extensive exploitation of the land. Successional areas may have increased as croplands were worn out and abandoned. These lands may have provided habitats for the wild fruit, which would have made resources from these areas easier to obtain than in earlier years.

Because fuel is a critical resource, we also examined whether the amount of forested land had been compromised by years of altering which fields were

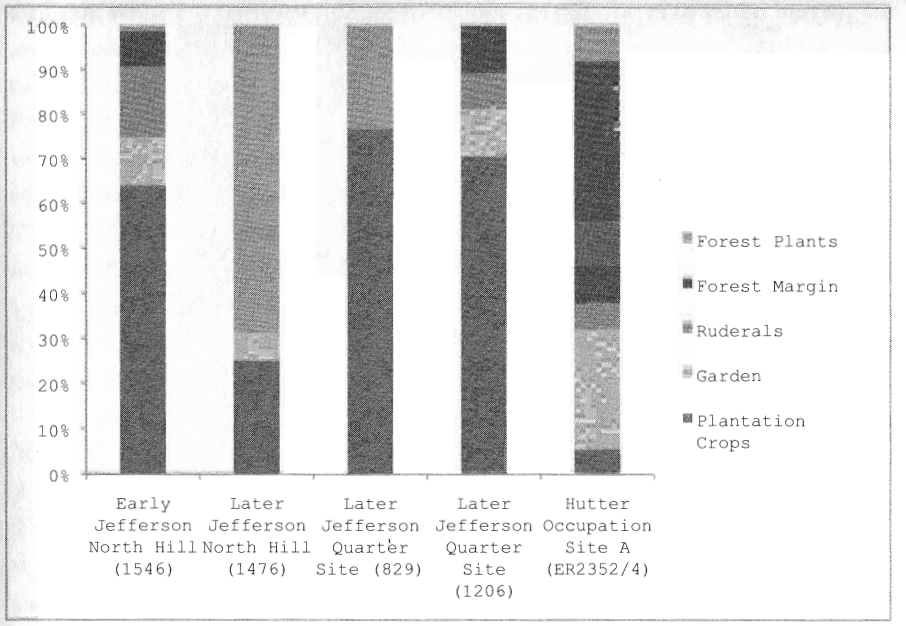


Figure 8.1. Proportion of seeds found at slave quarter sites from various habitats at Poplar Forest.

cultivated and the need for timber and firewood. During Hutter's tenure, forest plants, primarily nuts, comprise a smaller proportion of the assemblage, which may suggest that forests were smaller. To examine that possibility, we looked at the charred wood assemblage as an indication of the types of fuel the slaves were burning. A number of taxa were recovered from each feature; these included hardwood taxa such as oak, hickory, elm, and tulip poplar and softwoods, such as pine (table 8.2). We categorized the charred wood as excellent, good, or fair according to the heat value each wood generates (DeWald, Josiah, and Erdkamp 2005). Based on heat values, it appears that early Jefferson features are dominated by excellent fuel wood, but Quarter Site features from the later Jefferson period have a high proportion of fuel wood that is rated only fair in terms of the amount of heat it generates (figure 8.2). The Hutter-era assemblage is also dominated by wood with excellent heating properties. Thus it appears that even during Hutter's time, the slaves were able to obtain prime fuel woods.

The foods obtained from different areas on the plantation had a different cost and return on the investment of energy. Traveling to successional fields, forest edges, or mature forests or producing food in gardens may have required more of the slaves' effort than accepting rations provided by owners, but the use of these areas provides some indication of the slaves' control over their subsistence

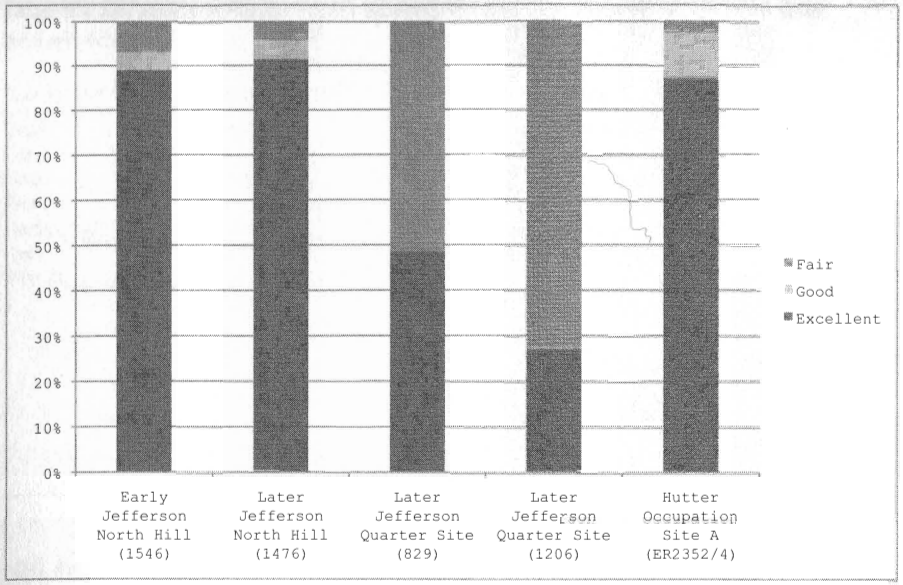


Figure 8.2. Proportion of wood with fair, good, and excellent heat value from samples found at Poplar Forest slave quarter sites.

activities and mobility. As other authors have noted (Heath 2001; Mrozowski, Franklin, and Hunt 2008), during leisure time slaves visited family members at other plantations. Traveling to and from their home plantation allowed them to learn about the location and extent of forest and forest margin resources. While slaves may have stolen food from plantation fields and orchards, they generally had little control over foods from these areas because such rations were controlled by the owner or overseer. However, the types and quantities of foods and medicine slaves grew in their gardens or gathered from disturbed areas in the plantation core were largely under their own control. The fact that wild resources were collected from forest margins, successional fields, and forests suggests that slaves had the ability or need to gather food in such places. While the analysis suggests that Hutter's slaves were not provisioned to the same degree as those under Jefferson, it may be that Hutter's slaves had a greater ability to travel, more time to do so and more latitude to make their own subsistence decisions.

The foods slaves gathered and grew in their gardens may also have provided a more balanced diet than would have been possible from rations alone. Rationing was highly variable among plantations. Each owner made decisions about what and how much to provide, but rations often included corn or corn meal, potatoes, and possibly occasional seasonal vegetables (Gibbs et al. 1980, 229). Jefferson's farm journal indicates that he regularly provided pork, corn, wheat, and salt, while his correspondence mentions his purchases of salted herring for slaves' consumption.[3] Starchy grains provide calories but typically lack critical vitamins and other nutrients. Weedy plants such as purslane and mint and fruit such as strawberries provide vitamin C, and nutmeats provide fats and fat-soluble nutrients such as vitamin A. While owners may have provided seasonal vegetables, gathered resources provided variety when crops were unavailable. Other plants may have helped season a bland diet of starchy grains (Trigg et al. 1994) or provided food security in times of seasonal shortages. Raymer (2003) suggests that the poppy seed she found might have served as a condiment and, like mint, may have provided both medicinal and culinary supplements to a nutritionally inadequate diet.

The different foods and fuels that indicate slaves' subsistence practices have implications for understanding differing management styles on the plantation. A decrease in taxonomic richness correlates with changes in plantation activity. This is attributed to either Jefferson's increased involvement as the main house was being built or a change Jefferson made in the overseers. His influence on the plantation, either by his physical presence or through his letters, may be a factor in the differences in botanical remains from the earlier North Hill Site seeds and the later North Hill and Quarter Site assemblages. It is possible that the slaves at Poplar Forest were provisioned differently under Jefferson's later ownership, which may correlate to the construction of the main house and his greater interest in the property. Jefferson meticulously recorded the daily plantation activities of his main home, Monticello, in his farm journal, and he recorded his ornamental plantings and experiments in his horticultural diary (Betts 1944), which also discusses activities at Poplar Forest but to a lesser degree than the farm journal. Jefferson's "legendary obsession for detail and control" (McDonald 2000, 177) certainly affected how he managed his slaves. Some plantation owners thought that gardening gave slaves too much autonomy, since it allowed them to earn money (Gibbs et al. 1980; Heath and Bennett 2000), and they did not allow slaves to produce their own food. However, Jefferson encouraged slaves to provide their own foods and even purchased eggs and seasonal produce from them (Heath 2001, 2004a). Even when they were adequately provisioned, slaves' diets typically lacked variety, which is one reason slaves stole food (Gibbs et al. 1980; Perdue, Barden, and Phillips 1976).

Hutter's management style was different from Thomas Jefferson's style (Heath et al. 2004), possibly because social perceptions of appropriate slave management changed. Hutter, like many of his contemporaries, leased, or hired out, his own slaves while occasionally hiring additional slaves himself. When Hutter hired out slaves to nearby plantations and businesses, he documented which slaves were leased, occasionally noting to whom they were hired. Unfor-

tunately he did not note how long slaves were hired.[4] This practice may have given Hutter's slaves the opportunity to become familiar with new landscapes. Leased slaves who moved beyond the immediate plantation lands owned by Hutter were exposed to neighboring environments. Their knowledge of broader landscapes could have provided them with opportunities to exploit different habitats. Encouraging slaves to produce or gather their own foods from forests and successional lands no doubt eased Hutter's need to provide food, but it also enabled slaves to obtain a more balanced diet.

Conclusion

The plant remains recovered from eighteenth- and nineteenth-century slaves' dwellings allow us to understand some of the complexities of slaves' subsistence activities. The archaeobotanical assemblages from Poplar Forest describe a variety of activities in which the slaves were engaged in their daily lives: laboring in plantation fields, producing their own crops, gathering wild resources from areas within the curtilage, and gathering resources from old fields and forests for food, fuel, utilitarian items such as baskets and mats, and medicine. While these activities are apparent in plants recovered from the sites, slaves' subsistence practices from the early Jefferson period through Hutter's tenure reflect changes in plantation activities, in owners' and overseers' management styles and in control over slaves' lives.

Under Thomas Jefferson, slaves supplemented their diet more strongly while he was an absentee owner than when he had a stronger presence. Under Hutter, enslaved African Americans not only supplemented their diet much like the slaves had when Jefferson was an absentee owner but also appear to have exploited plants in the forest margin to a much greater degree. This may have been influenced by an increased familiarity with their local environment, a result of Hutter's practice of hiring out slaves.

Jefferson, either personally or through his overseer, may have provided slaves with proportionally more rations than Hutter did, and Hutter's slaves may have compensated for this by increasing their own production and gathering foods from forest margins. Provisioning does not necessarily translate into a nutritionally adequate diet, and some measures of dietary stress suggest that Jefferson's slaves, particularly during the later occupation, had the most adequate diet. Other analysis suggests that Hutter's slaves, who appear to have been responsible for more of their own foods, had a more nutritious diet. It is not our intention to suggest that slaves' lives or even their diets were better under Jefferson or Hutter, and indeed the botanical remains alone cannot tell us whether slaves were better treated or better fed by one owner or the other. Other researchers have argued for the psychological value of self-sufficiency and control that came with a diet largely provided by the slaves themselves (Heath and Bennett 2000; Mrozowski, Franklin, and Hunt 2008). It may well be that there was a trade-off between self-determination and food security.

Notes

1. Edward S. Hutter, Income and Expense Journal, July 1, 1856–January 1, 1862, The Corporation for Thomas Jefferson's Poplar Forest, Forest, Virginia.

2. Edward S. Hutter, Farm Journal, January 1, 1844–December 31, 1854," The Corporation for Thomas Jefferson's Poplar Forest, Forest, Virginia (hereafter Hutter Farm Journal).

3. Betts (1987, 185–187); Thomas Jefferson to Joseph Darmsdatt, May 27, 1810, July 30, 1813, June 9, 1816, and May 25, 1819, Coolidge Collection of Thomas Jefferson Manuscripts, Massachusetts Historical Society, Boston, Massachusetts; Joel Yancey to Thomas Jefferson, May 31, 1821, Coolidge Collection of Thomas Jefferson Manuscripts; Jefferson to Craven Peyton, June 5, 1821, Coolidge Collection of Thomas Jefferson Manuscripts.

4. Hutter Farm Journal.