APPENDIX D

ANALYSIS OF FLOTATION SAMPLES FROM FORD FARM

Results of Analysis: Flotation-Recovered Botanical Remains From the Ford Farm Site (7K-C-386E)

by Justine McKnight

Introduction:

A single soil sample from the Ford Farm Site (7K-C-386E) was selected for flotation-processing and macrofloral analysis. Three liters of cultural fill were retained from Excavation Unit 21 (Stratum D, Level 15).

Methods:

The Ford Farm flotation sample was obtained from unscreened fill collected from across the base of the stratigraphic level. The soil sample was thoroughly dried and was then packed for in a vinyl bag for storage.

The soil sample was processed using a Flote-Tech machine-assisted flotation system equipped with 0.325 mm fine fraction and 1.0 mm coarse fraction screens. The Flote-Tech system is a multi-modal flotation system which facilitates the separation and recovery of plant remains from the soil matrix via agitation in water combined with forced air delivered through submerged pipes. Processing resulted in two size fractions (heavy and light). The flotation processing was conducted indoors using tap water and electricity from a 110-volt outlet. The resulting floated portions were air dried.

All carbonized plant remains recovered through flotation were combined and passed through a 2 mm geological sieve, yielding fractions of two different sizes for analysis. Weights and sample descriptions of the resulting specimens greater than or equal to 2 mm and less than 2 mm were recorded. The charcoal specimens that were greater than or equal to 2 mm were examined under low magnification (10X to 30X) and sorted into general categories of material (i.e., wood, amorphous charcoal, etc.). Description, count, and weight were taken for each category of the material in the greater than or equal to 2 mm size range. The fractions of the less than 2 mm size were examined under low magnification, generally described, and scanned for the remains of seeds and cultivated plants.

Identifications were routinely attempted on all miscellaneous plant remains recovered, and on a sub-sample of twenty randomly selected wood fragments from the sample, in accordance with standard practice (Pearsall 1989). Identifications of all classes of botanical remains were made to the genus level when possible, to the family level when limited diagnostic morphology was available, and to the species level only when the assignment could be made with absolute certainty. When botanical specimens were found to be in such eroded or fragmentary condition as to prevent their complete examination or recognition, a variety of general categories were used to reflect the degree of identification possible. General wood categories within the Ford Farm Site assemblage include *ring porous*, where specimens exhibited differences between early and late wood growth, *deciduous taxa*,

where specimens could be identified as having a porous vessel arrangement reflecting deciduous trees rather than a trachid arrangement indicative of coniferous taxa, and *unidentifiable*, where specimens were so minute or eroded that identification was impossible. The category *amorphous carbon* is used in this report to classify carbonized vegetative remains which lacked any suitable characteristics whatsoever upon which to base identification.

All identifications were made under low magnification (10X to 30X) with the aide of standard texts (Hoadley 1990; Panshin and deZeeuw 1970), and checked against plant specimens from a modern reference collection representative of the flora of Kent County, Delaware. Specimens were weighed using an electronic balance accurate to 0.01 grams.

Results of Analysis:

The archaeobotanical assemblage from the Ford Farm Site contained abundant carbonized plant remains. Flotation processing of 3 liters of soil resulted in the recovery of 5.05 grams of charcoal, or an average density of 1.68 grams of charcoal per liter. Recovered plant remains include native deciduous wood, unidentifiable rind-like fragments, and amorphous charcoal. Table D1 presents an inventory of flotation-recovered plant remains from the Ford Farm Site.

Wood charcoal was the most abundant class of plant remain recovered. A total of 322 carbonized wood fragments weighing 4.70 grams was recovered. The identified wood sub-sample revealed the presence (in order of abundance) of white oak *(Quercus sp.) (LEUCOBALANUS group)* (30 percent of the identified sub-sample, by count) and red oak *(Quercus sp.) (ERYTHROBALANUS group) (15 percent)*. Highly fragmented wood specimens were assigned to the categories *ring porous* (20 percent), *deciduous taxa* (15 percent), and *unidentifiable* (20 percent). The oak species identified within the site assemblage would have been common to the mixed hardwood forest native to Delaware's Coastal Plain (Eyre 1980; Tatnall 1946).

Miscellaneous plant-related materials included 2 fragments of rind-like material weighing 0.04 grams. These specimens measured approximately 2.5 mm in thickness, and possessed a lightly striated outer surface. Eleven fragments of amorphous carbon weighing 0.31 grams were also recovered.

Summary and Recommendations:

This analysis of flotation samples from the Ford Farm Site documents the persistence of plant macro-fossils within cultural sediments, evidences a reliance on locally available high-calorie fuel resources, and supports our knowledge of the composition of local forests during the Woodland I period. However, the data at hand provide only a very incomplete picture of the relationship between prehistoric populations and available plant resources during this time of prehistory. Overall, carbonized plant macro-fossils were abundant, but not diverse, and their condition was fair. No edible plant remains were recovered within the analyzed flotation sample, but this may simply be a result of the limited sample size. Regardless, these results from the Ford Farm Site do not advance

a very rigorous interpretation of subsistence practices, patterns of plant utilization, or paleo-environmental conditions during the Woodland I period.

Table D1: Flotation-Recovered Plant Remains from the Ford Farm Site (7K-C-386E)

		Unit 21, Stratum D, Level 15
Soil Sample Volume (liters)		3
Total Weight Carbonized Remains (grams)		5.05
Wood Charcoal	total count	322
	total weight	4.70 grams
Quercus sp. (white oak group)		6
Quercus sp. (red oak group)		3
Ring Porous		4
Deciduous		3
Unidentifiable		4
Unidentifiable Rind Fragment		2 (0.04 grams)
Amorphous Carbon		11 (0.31 grams)

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