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VEGETATION SURVEY OF PEN BRANCH AND FOUR MILE CREEK WETLANDS (U)

PREPARED BY: DAMES & MOORE, INC
Contract No. AX-715307, Task 14

PREPARED FOR: Environmental Sciences Section
Savannah River Technology Center

WESTINGHOUSE SAVANNAH RIVER COMPANY
SAVANNAH RIVER SITE
AIKEN, SC 29808

Prepared for the U.S. Department of Energy under Contract No. DE-AC09-89SR18035

D. B. Moore-Shedrow, Manager
Authorized Derivative Classifier

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DISCLAIMER

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1.0 INTRODUCTION

One hundred-fifty plots were recently sampled by Dames & Moore during the Task #14 vegetational sampling study for Westinghouse Savannah River Company (WSRC), the operating contractor at Savannah River Site (SRS) for the U.S. Department of Energy (DOE). An extensive characterization of the vascular flora, in four predetermined strata (overstory, understory, shrub layer, and ground cover), was undertaken to determine dominance, co-dominance, and the importance value (I.V.) of each species. These results will be used by the Savannah River Laboratory (SRL) to evaluate the environmental status of Four Mile Creek, Pen Branch, and two upland pine stands.

The objectives of this study were to accomplish the following:

- Describe in detail the plant communities previously mapped by SRL/ESS staff with reference to the topography and drainage, including species of plants present.

- Examine the successional trends within each sampling area and describe the extent to which current vegetation communities have resulted from specific earlier vegetation disturbances (e.g., logging and grazing) (The objective of the Task #14 Vegetational Sampling Study, at SRL's request, was that Dames & Moore provide only raw data without conclusions; SRL staff would perform the analyses of data).

- Describe in detail the botanical field techniques used to sample the flora.

- Describe the habitat and location of protected and/or rare species of plants.

- Collect and prepare plant species as herbarium quality specimens.

Sampling was conducted at Four Mile Creek and Pen Branch, and in two upland pine plantations of different age growth. The pine uplands have xeric soils and

undulating terrain, and differ in vegetational composition from the Four Mile Creek and Pen Branch systems sampled. Therefore, no comparison with vegetational data should be made using the upland pine area data.

2.0 SITE DESCRIPTION

The Savannah River Site (SRS), which is located in portions of Aiken, Barnwell, and Allendale Counties, covers approximately 78,000 ha in southwest-central South Carolina (Figure 1). The plant is 25 miles east of Augusta, GA and 12 miles south of Aiken, SC.

2.1 PHYSIOGRAPHIC REGIONS

The SRS is a nuclear production facility of the U.S. DOE. Public access to the SRS is controlled because the site is an integrated nuclear complex, containing nuclear reactors, nuclear fuel chemical separations plants, a fuel fabrication facility, and a nuclear research laboratory (Workman and McLeod, 1990). Tight security is maintained due to the production and disposal of radioactive waste within the plant confines.

The land for the Savannah River Site was acquired in 1950. At the time of acquisition, approximately one-third of the land was used for agricultural purposes. Presently, much of the land has been planted in several species of pine (Pinus taeda, P. palustris, and P. serotina) which is periodically harvested for timber.

The climate at SRS is one of mild winters and warm summers. Precipitation, in the form of rain fall, averages 91 to 112 cm (35 to 44 in) per year. The average yearly temperature is 18 degrees Celsius (64 degrees Fahrenheit), with January and July being the coldest and warmest months, respectfully (U.S. DOE, 1987).

The SRS can be divided into two major physiographic regions, the Sandhills and the Upper Coastal Plain (Figure 2). The Upper Coastal Plain can further be broken down into the Aiken Plateau and the Pleistocene Coastal Terraces (U.S. DOE, 1987) (Figure 3). The Aiken Plateau comprises approximately 12,000 ha of the Savannah

River Site. This region generally lies above 82 meters in elevation and can be characterized by heavily eroded, sandy soils.

The Pleistocene Coastal Terraces were developed within the lower third of the SRS due to three separate drops in sea level. There are three adjacent terraces within this subregion: the Brandywine, the Sunderland, and the Wicomico. The Brandywine Terrace traverses the SRS from a northwest to southeast direction, on the upper portion of the Pleistocene Coastal Terrace region, and extends along the eastern border to the north portion of Lower Three Runs Creek. The Sunderland Terrace parallels the Brandywine and is approximately 5 km wide. The Wicomico is the southernmost terrace, running in close proximity with the Savannah River floodplain until dipping into the floodplain just past the confluence of Pen Branch.

One interesting physiographic aspect of the SRS is the existence of Carolina bays. Carolina bays are naturally occurring depressions which contain hydric soils and wetland plant species. There are an estimated 194 bays within the SRS boundaries (Schalles et al., 1989). Many of these areas have been drained due to past agricultural practices and now contain vegetation which is not indicative of a natural bay flora.

2.2 VEGETATION COMMUNITY TYPES

2.2.1 General Description

The dominant vegetation type at the Savannah River Site is the Oak-Pine Forest Region, which is comprised of various species of oaks and pines. The area is transitional between the Mixed Deciduous Forest of the Valley and Ridge and the Evergreen Forest Region of the Coastal Plain. Throughout this physiographic region, differences of soil and topography are reflected in differences in forest composition. This is emphasized by the combination of dominants that are present, such as the combination of pines in pure stands or persistent among hardwoods.

Due to development of the land from the introduction of the first white settlements to the present, the pure stands of upland deciduous forest are a thing of the past. Land utilization, with consequent destruction of forest, subsequent abandonment of fields, and soil erosion, have profoundly influenced vegetation. Evidence of these former land uses can be found in old cotton field terraces on contours, in ditches, trenches or gullies, and in piles of rock here and there that signify former fields or pastures. Vegetational characteristics include even aged pines in pure or mixed stands, uneven age or young hardwood forest in which oaks and hickories prevail, and mixed forests of oaks and pines scattered throughout the uplands. Additional evidence is the presence of numerous exotics that have naturalized in the area and in some instances have become prolific. An example of these introduced species are privet hedge, honeysuckle, kudzu, peach trees, and apple trees.

In low areas, wetlands are generally characterized as narrow strips of bottomland that are not usually swampy. The swamps normally found in uplands that are characteristic of many other regions are uncommon in this area due to the gently rolling terrain and the lack of large level areas. The vegetation associated with these areas is usually composed of deciduous species among which floodplain trees are prominent.

2.2.2 Wetland Classification

The wetlands encountered in the wetland sampling studies conducted at the Savannah River Site were identified and classified according to a classification scheme developed by the U.S. Fish and Wildlife Service (USFWS) and described in ~~the 1979 publication~~ Classification of Wetlands and Deepwater Habitats of the United States, ~~by~~ (Cowardin, et al. 1979). This document classifies wetlands and open water systems by class, vegetation cover, hydrology, substrate type and water quality.

All wetlands identified in the study area were palustrine forested, scrub/shrub, and emergent persistent and nonpersistent wetlands. A palustrine wetland includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent

mosses and lichens, and wetlands lacking such vegetation. The palustrine wetlands located in the study area are described as follows:

- Forested Wetlands - areas with an areal coverage of at least 50 percent for trees over a shrub layer with 60 percent minimum areal coverage;

- Scrub/Shrub Wetlands - an area with at least 20 percent areal coverage of trees over a shrub layer with 60 percent areal coverage or a combination in which trees and shrubs have a combined areal coverage of 30% or more; and,

- Emergent Wetlands - an area with a combined areal coverage for trees of less than 30 percent and an emergent vegetation with an areal coverage greater than 30 percent.

The emergent wetland class is generally characterized by erect, rooted, herbaceous plants excluding mosses and lichens. This vegetative classification can be subdivided into two groups, the persistent and nonpersistent, which are determined by the vegetative cover that dominate these areas. The persistent emergent wetlands are dominated by a mixture of perennial and annual vegetation that is present only during the growing season. Generally, these areas are dominated by species that normally remain standing (dead or alive) at least until the beginning of the next growing season. The emergent nonpersistent wetlands are dominated by plants which fall to the surface of the substrate or below the surface of the water at the end of the growing season. Thus, at certain seasons of the year, no obvious sign of vegetation is present.

3.0 MATERIALS AND METHODS FOR FIELD WORK

Two sampling techniques, quadrats and linear transects, were used to characterize the vegetation within the assigned areas of study. The community type(s) within each area determined the method used to examine the area's vascular flora as well as the dominants of that area. Following is a detailed description of each method of analysis along with the materials utilized for both techniques.

3.1 QUADRAT METHOD

The quadrat method (Figure 4) was typically employed in areas of bottomland hardwoods, cypress swamps, and other areas which met the criterion for containing overstory vegetation (criterion discussed below). Each site was surveyed to ensure that the plot would characterize the wetland areas below the seepage basins, such as the F- & H-Areas, and the wetlands along the Four Mile Creek and Pen Branch drainages. The exception to this was the upland pine stands located along Road C at the junction of Road 3. After selection of the site for each sample plot, a brief characterization of the area was made in the field journal or on the ground cover data sheet. The plot was then established in a rectangular shape of 20 meters x 25 meters, with all azimuths being recorded on field data sheets. Modifications of the plot shape were necessary in some cases to ensure the sampling area remained within the flood-plain or below the seepage basin; however, the 500 square meter sampling area size was retained (e.g., a 10 meter x 50 meter plot might be established).

In opposing corners of each plot, 1 square meter and 25 square meter plots were established for characterization of the ground cover and shrub/understory layers, respectively (Figure 4).

The materials used for marking each site consisted of a section of PVC pipe (approximately 5 feet in length) which was painted with pink florescent spray paint or flagged with pink flagging. The PVC pipe was driven into the ground in each corner of the plot, with exposed pipe extending at least 1.0 meter above the ground. The

plot was also staked with a 2-foot section of metal rebar to assure that each site is permanently marked. All sites were then tagged with an aluminum tag to identify the plot number and the contractor.

Sampling of the Overstory Plots

One, 500 square meter plot was used to characterize the overstory vegetation. To meet the criteria for overstory vegetation, woody plants should be greater than 61.0 cm in height and greater than or equal to 10.0 cm diameter at breast height (dbh). A measurement of diameter at breast height is the measurement for the diameter of a tree at the standard height of 1.5 meters. The measurement of dbh is used to determine basal area in order to establish overstory vegetation dominance. All trees which met the above requirements and were located within, or partially within, the plot boundaries were measured and identified to species.

Sampling of the Shrub/Understory Plots

Two, 25 square meter plots were established in opposing corners within the 20 meter x 25 meter plot for sampling the shrub layer and understory vegetation. The criterion for understory vegetation was determined to be all woody plants greater than 61.0 cm height and greater than or equal to 2.5 cm dbh and less than 10.0 cm dbh. The shrub stratum contains all woody plants and vines greater than 61.0 cm height vertically or climbing and less than 2.5 cm dbh (while this criterion is used to define the stratum, actual field measurements of diameter were taken 5.0 cm above the ground on the largest stem). A tree caliper was used to measure the diameter of the vegetation, which was recorded in inches as the standard unit of measurement on the data sheets and converted to the metric unit of centimeters during data analyses.

Sampling of the Ground Cover Plot

Two, 1 square meter plots were sampled in opposing corners of the 20 meter x 25 meter quadrat, nested within the 5 square meter shrub/understory plots, to examine the ground cover vegetation. Ground cover vegetation consists of all woody plants less than 61.0 cm height and all herbaceous plants of any height. All plant species which met the criterion for ground cover vegetation within the 1 square meter plots were assigned a numerical value indicative of percent cover for that plot. A table (from Radford et al., 1974) showing cover values appears below.

* Cover + - Cover less than 1 %
  Cover 1 - Cover 1% to 5%
  Cover 2 - Cover 5% to 12.5%
  Cover 3 - Cover 12.5% to 25%
  Cover 4 - Cover 25% to 50%
  Cover 5 - Cover 50% to 100%

* Cover 0 was used instead of the + for individuals that have a cover less than 1 percent.

Miscellaneous Data Collected Within Plot

Two specimens of each species documented within each plot were collected when first observed. Both specimens were pressed and then dried in the Dames & Moore herbarium dryer, with one specimen being identified, labeled, and mounted for presentation to the SRL. The second specimen will remain in the Dames & Moore Herbarium for future reference. In addition, a species list (Table 1) of all the vascular flora occurring within the 20 meter x 25 meter plots was compiled to show species that may not have fallen into the above-mentioned categories.

Tree height was measured using a clinometer to ascertain the average overstory height. Three readings of the clinometer were taken at each plot, then averaged

[redacted]

together to determined the approximate tree height. Increment bores were then utilized to take core samples from the overstory vegetation. These may be used to determine the approximate age of the community being sampled. Core samples were labeled and stored in plastic straws for future lab review.

Finally, photos were taken of the 1 square meter and 25 square meter plots, collectively. Then, a photo was taken of the entire plot to show the community type.

3.2 LINEAR TRANSECT METHOD

Absence of overstory within the assigned sampling area determined the need to use the linear transect method (Figure 5). The linear transect provides a more thorough characterization of the ground cover and the shrub/understory strata than is possible using the quadrat method. The transects were set up on a 20 meter straight line azimuth with five, 1 meter square plots being spaced at intervals of 5 meters on alternating sides of the transect. The two, 25 square meter plots were located on either end of the 20 meter transect.

All linear transects were marked with a section of PVC pipe driven into the ground, extending at least 1 meter above the ground, located on either end of the transect. A 2-foot section of metal rebar was used as a permanent marker. Aluminum tags were attached to the rebar to identify each plot and the contractor.

The methods for sampling the ground cover and shrub/understory vegetation in the linear transects were identical to the methods utilized in doing the quadrat plots.

4.0 ANALYTICAL METHODS

4.1 OVERSTORY, UNDERSTORY, AND SHRUB LAYER VEGETATION

Quantitative data were collected from each of the individual quadrat locations for the overstory, understory, and shrub layer strata. The type of data collected for each of these strata was identical and consisted of the individual species identification and the species diameter in inches. From these field data the following information was derived based on Phillips (1959) and Mueller-DuBois and Ellenberg (1974):

Individual Species Count/Average for the Measured Transect

The individual species count/average for the individual measured transect is the actual number of individual trees or shrubs of an individual species found to occur within the sampling plot. The individual species count is a measure of the diversity and abundance of species in the overstory and understory strata as quantified during the field data collection.

$$\text{Total Density (plants/unit area)} = \frac{\text{Number of plants (species i)}}{\text{Number of subplots}}$$

The total density for vegetation sampling at SRS refers to the number of individuals recorded by species, which is a direct measure of the individual species abundance within the measured area. For a particular stratum, all plots are a standard size, so comparison on a per plot basis are equivalent to comparisons on a per unit area basis.

$$\text{Relative Density} = \frac{\text{Number of plants (species i)}}{\text{Number of plants of all species}} \times 100$$

The relative density is derived from the total density and is a measure of the density relative to the other species sampled.

$$\text{Total Frequency} = \frac{\text{Number of plots at which species i occurs}}{\text{Number of subplots}}$$

The vegetation frequency is the number of times an individual species is recorded from within a given number of quadrats or transects, or can be the number of times a species is found at a given number of individual sampling points. Commonly the term "frequency of occurrence" is used for this concept. Total frequency is the actual number of points at which a species is found to occur for a given number of sample points. Thus, the total frequency is an absolute value derived directly from the field data sheets.

$$\text{Relative Frequency} = \frac{\text{Frequency of species i}}{\text{Sum of frequencies of all species}} \times 100$$

The relative frequency measurement is a directly measured value that is converted to a percentage which is normalized for the individual study area. Conceptually, frequency can be considered a measure of abundance and is related in concept to density. However, frequency of occurrence gives no indication of the cover or the aerial extent of the coverage of individual plant species within a given measurement area.

$$\text{Total Dominance} = \frac{\text{Total basal area of species i}}{\text{Number of subplots}}$$

Plant dominance is commonly measured by cover or by basal area. For this study program, basal area was selected as the measure of dominance that would provide the most useful data concerning the structural characteristics of the individual vegetation stands surveyed. The total dominance is the collected individual basal area values (in square centimeters) per tree for an individual species, divided by the number of subplots from within the sampling area. From a plant ecology perspective, the dominance value is a measure of the success or the "influence" that a given tree species has when compared to other species from within the same measured area. Frequently, important tree species are evaluated on the basis of their dominance characteristics.

$$\text{Relative Dominance} = \frac{\text{Total basal area of species i}}{\text{Total basal area of all species}} \times 100$$

In a manner similar to that noted above for relative density and relative frequency, relative dominance is the total dominance term for a given species expressed as a percentage of the sum of the dominance of all species. The relative dominance percentage is a measure of the portion of the entire sampling population that consists (in terms of basal area) of the different species that are measured within the transect or quadrat.

$$\text{Importance Value (I.V.)} = \text{Relative Density (\%)} + \text{Relative Frequency (\%)} + \text{Relative Dominance (\%)}$$

The I.V. is useful to the evaluation of site vegetation because it combines the three principal measures of the vegetation taken from each of the study sites, namely the density, frequency and dominance of the plant species. The I.V. is the sum of the relative values (the percentages) obtained for each of the three measurement parameters and is thus in a numerical value that can range from 0 to 300 percent depending on the individual site and the mix of species observed. Generally, the higher the I.V. for the individual species, the greater the influence which the species exerts on the study site based on the competition for available nutrients, water and sunlight. In addition, the I.V. is an indication of the success of the individual species within a specific study site relative to all other species recorded from that sampling location.

In addition to the above numerical results tabulated for the SRS data, two other statistical measures were determined from the data to provide further insight into the dynamics of the species interactions noted at each of the sampling areas. These measures are species richness and species diversity. These concepts are briefly described below:

$$\text{Species Richness} = \frac{S - 1}{\text{Log (N)}}$$

Where, S = Total number of species collected for the stratum

N = Total number of individuals collected for the stratum

This index of species richness was originally proposed by Margalef (1958) and has since been extensively used by botanists. The richness index will vary with sample size, and assumes a functional relationship between S and N. In essence, the richness index is a "species-area" relationship and commonly can be plotted as approximately a straight line if the relationship used is the number of species recorded against the logarithm of the area.

$$\text{Species Diversity} = 1 - \Sigma \left[\frac{ni\ (ni - 1)}{N\ (N - 1)}\right]$$

Where, ni = number of individuals of species i

N = total number of individuals collected = S ni

This is Simpson's diversity index (Simpson, 1949) and it represents the probability of picking two organisms at random that belong to different taxa. This index, the complement of Simpson's original measure, ranges from 0.0 (low diversity) to almost 1.0.

4.2 GROUND COVER VEGETATION

Quantitative data were collected from each of the individual transect locations for the ground cover stratum. The data collected for the ground cover stratum were obtained using the microplot-quadrat method. Individual ground cover species were identified from the microplots and an indication of the relative cover was made using the Braun-Blanquet or the vegetation releve' method (which describes the spatial floristic variation of a regional vegetation cover). Using this method, individual plant species occupying a percentage of the microplot are recorded on the field sheets showing their percent cover as a Braun-Blanquet cover abundance value ranging from a + value to a value of 5. The method was altered to accommodate the computer program. A percentage value scale of 0 to 5 was utilized for cover values (Ref: Table on p. 3-3).

The results recorded on the field sheets included the identification of the individual species and their quadrat-by-quadrat cover values. From this field information, the following statistical data were obtained.

Individual Ground Cover Species Count (total points) for the Microplots

The individual ground cover species count (total points) for the microplots is the actual number of times that an individual species was found to occur within a given sampling area. The following statistical measure was used to express this species presence concept.

$$\text{Total Frequency} = \frac{\text{No. of plots at which species i occurs}}{\text{Number of subplots}}$$

Vegetation frequency is the number of times that an individual species is recorded from within a given number of individual sampling points. Total frequency is the actual number of points at which a species is found to occur for a given number of sample points. Thus, the total frequency is an absolute value derived directly from the field data sheets.

$$\text{Relative Frequency} = \frac{\text{Frequency of species i}}{\text{Sum of frequencies of all species}} \times 100$$

The relative frequency measurement is the total frequency value converted to a percentage that is normalized for the individual study area.

$$\text{Total Dominance (Cover)} = \frac{\text{Average cover for species i (in \%)}}{\text{Number of subplots}}$$

Plant dominance is frequently measured by cover. The total dominance (cover) is the average cover values per species (in %) within the sampled subplots. The average cover is computed by adding the mid-point percent cover of each cover value (see p. 3-3) and dividing by the number of subplots sampled.

$$\text{Relative Dominance (Cover)} = \frac{\text{Dominance of species i (in \%)}}{\text{Sum of dominances of all species}} \times 100$$

The relative dominance (cover) term is expressed as a percentage. The relative dominance percentage indicates the portion of the entire sampling population that consists (based solely on cover) of each particular species sampled within the microplot sampling area.

Importance Value = Relative Frequency (%) + Relative Dominance (Cover) (%)

The I.V. concept as applied to the ground cover vegetation for the SRS program is based on two plant measures - frequency (occurrence) and dominance (cover). The I.V. uses the relative values (the percentage values) obtained for both measurement parameters and results in a numerical value that can range from 0 to 200 percent, depending on the individual site.

For ground cover, the species richness and species diversity are computed using the same formula as for overstory, understory, and shrub layers. However, the definitions of S, N. and ni are modified as follows:

For Species Richness:

S = Total number of species collected

N = Total frequency of all species collected times the number of plots sampled.

For Species Diversity:

ni = total cover for species i (in %)

N = total cover for all species (in %)

An explanation of the data summarized in the results tables for the overstory, understory, and shrub layer strata has been included at the end of the text (Table 2).

4.3 SPECIES AREA CURVE

The species area curve is designed to indicate the point at which statistically sufficient sampling has been accomplished within a given study area. Cain (1938) states that sampling is adequate when a 10 percent increase in sample area results in an increase of species equaling 10 percent (or less) of the total species identified that point (Radford, et al., 1981). Unless an area was designed by SRL as requiring certain number of plots, the species area curve was used to prevent unnecessary oversampling within each area.

5.0 METHODS FOR DOCUMENTING THE VASCULAR FLORA

Collected specimens were to be identified to the appropriate genus or species level. Due to the seasonal absence of reproductive structures, identification to species level was impossible for some vegetation.

For each of the species within the sample plots, two specimens were collected. The first will be provided as a representative specimen for the SRL Herbarium; the duplicate specimen will remain in the Dames & Moore Herbarium for future reference. Collected plant specimens were pressed and dried upon returning to the lab. The procedures used for pressing plant specimens are as follows:

1. Plants were thoroughly cleaned to provide the best possible representative specimen, and to help prevent the accidental importation of insects to the Dames & Moore Herbarium.

2. Each plant was selectively cleared of excess foliage to allow vital characteristics of that species to be easily seen (e.g., the removal of leaves to expose the terminal bud).

3. A section of the stem of all woody plants was opened longitudinally to expose the parenchyma tissue (pith cells).

4. Leaves were pressed in a manner to show both upper and lower surfaces, leaf arrangement, and leaf type.

5. The reproductive organs, when present, were pressed both whole and sectioned. This was done to allow documentation of as many surfaces as possible and to show the inner structures of the reproductive organs.

6. The specimens were then placed within 11 inch x 16 inch pressing paper and inserted between two ventilators, which were bound within hardwood frames, kept under pressure, and placed in the herbarium dryer.

7. The press was stored in the dryer for 5-7 days and maintained at a temperature of 120 degrees Fahrenheit.

Once the plants were adequately dried and sterilized, they were removed from the presses, identified, mounted, labeled, and stored in manila folders. Nomenclature for identification of the flora follows the standardized scheme of the National List of Scientific Plant Names (U.S. Soil Conservation Service, 1982a, and 1982b) and The Manual of the Vascular Flora of the Carolinas (Radford, et al., 1987). The specimens have been arranged heirarchically by division and alphabetically by families, genera, specific and infraspecific taxa.

6.0 THREATENED AND ENDANGERED PLANT OF SRS

Prior to conducting the field work for Task #14 Vegetational Sampling Study at SRS, a literature review was performed to determine which threatened and/or endangered (T&E) species could possibly be encountered during the field sampling program. A publication of the DOE's Savannah River Site National Environmental Research Park Program, The Endangered, Threatened, and Rare Vascular Flora of the Savannah River Site (Knox and Sharitz, 1990) was utilized as a current listing of T&E plants occurring on SRS. The publication cited 30 species found on SRS that are on the South Carolina State T&E list (Table 2). Eight of these are currently under review for the federal T&E list. An additional 29 species are listed in the publication as possibly occurring on SRS, although not recorded as having been found there, through similarity of habitats (Table 3).

The publication states that "approximately two-thirds of these plants are found in wetland habitats." This is significant because the majority of the vegetational sampling conducted in this study occurred within wetland habitats.

A total of 275 species were identified during field studies of the Task #14 Vegetational Sampling Study. No threatened and/or endangered species were encountered while conducting this study.

REFERENCES

Cain, S. A. 1938. The species-area curve. Am. Midl. Nat. 19:573-581.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deep Water Habitats of the United States. U.S. Government Printing Office, Washington, DC. FWS/OBS-79/31.

Knox, John N. and Rebecca R. Sharitz. 1990. Endangered, Threatened, and Rare Vascular Flora of the Savannah River Site. Savannah River Site National Environmental Research Park Program. SRO-NERP-20.

Margalef, R. 1958. Information Theory in Ecology. Gen Syst. 3:36-71.

Radford, Albert E., et al., 1981. Natural Heritage. The University of North Carolina Press, Chapel Hill, NC. 485 pp.

Radford, Albert E., H. E. Ahles, C., and Ritchie Bell. 1987. Manual of the Vascular Flora of the Carolinas. 10th Ed. The University of North Carolina Press, Chapel Hill, NC. 1183 pp.

Radford, Albert E., W. C. Dickson, J. R. Massey, and C. R. Bell. 1974. Vascular Plant Systematics. Harper & Row, New York.

Schalles, John F. and Rebecca R. Schalles, J. Whitfield Gibbons, Gordon J. Leversee, and John N. Knox. 1989. Savannah River Plant National Environmental Research Park Program. SRO-NERP-18.

Simpson, E. H. 1949. Measurement of Diversity. Nature 143: 688.

U.S. Soil Conservation Service. 1982a. National List of Scientific Plant Names, Vol. I, List of Plant Names. USDA Publication SCS-TP-159.

U.S. Soil Conservation Service. 1982b. National List of Scientific Plant Names, Vol. II, Synonymy. USDA Publication SCS-TP-159.

U.S. Department of Energy (U.S. DOE). 1987. Final Environmental Impact Statement: Alternative Cooling Water Systems, Savannah River Plant, Aiken, SC. DOE/EIS-01-21

Workman, Sarah W. and Kenneth W. McLeod. 1990. Vegetation of the Savannah River Site: Major Community Types. Savannah River Site National Environmental Research Park Program. SRO-NERP-19.

TABLE 1

VASCULAR FLORA OF SRS

		LYCOPODIOPHYTA
Lycopodiaceae	- LYCSP.*	Lycopodium sp. - clubmoss
		PTERIDOPHYTA
Aspidiaceae	- ATAS	Athyrium asplenioides - southern lady fern
	- ONSE	Onoclea sensibilis - sensitive fern
	- THNO	Thelypteris noveboracensis - New York fern
Aspleniaceae	- ASPL	Asplenium platyneuron - ebony spleen wort
Blechnaceae	- WOAR	Woodwardia areolata - netted chainfern
Ophioglossaceae	- BOTSP.	Botrychium sp. - grapefern
	- BOBI	Botrychium biternatum - southern grapefern
	- BODI	Botrychium dissectum - common grapefern
Osmundaceae	- OSCI	Osmunda cinnamomea - cinnamon fern
	- OSRE	Osmunda regalis - royal fern
Polypodiaceae	- POPU	Polypodium polypodioides - resurrection fern
Pteridaceae	- CHTO	Cheilanthes tomentosa - wooly lip fern
	- PTAQ	Pteridium aquilinium - bracken fern
Salviniaceae	- AZCA	Azolla caroliniana - mosquito fern
		GYMNOSPERMAE
Pinaceae	- PIEC	Pinus echinata - shortleaf pine
	- PIEL	Pinus elliottii - slashpine
	- PIPA	Pinus palustris - longleaf pine
	- PITA	Pinus taeda - loblolly pine
Taxodiaceae	- TADI	Taxodium distichum - bald cypress

ANGIOSPERMAE

DICOTYLEDONEAE:

Aceraceae	- ACNE	Acer negundo - box elder
	- ACRU	Acer rubrum - red maple
	- ACSAVF	Acer saccharum var. floridanum - southern sugar maple
	- ACSAVL	Acer saccharum var. leucoderme - chalk maple
Amaranthaceae	- ALPH	Alternanthera philoxeroides - alligator weed
Anacardiaceae	- RHCO	Rhus copallina - winged sumac
	- RHGL	Rhus glabra - smooth sumac
	- TORA	Toxicodendron radicans - poison ivy
	- TOVE	Toxicodendron vernix - poison sumac
Apocynaceae	- VINSP.	Vinca sp. - periwinkle
Aquifoliaceae	- ILSP.	Ilex sp. - holly
	- ILDE	Ilex decidua - possum haw, deciduous holly
	- ILGL	Ilex glabra - inkberry
	- ILOP	Ilex opaca - American holly
	- ILVE	Ilex verticillata - winter berry
	- ILVO	Ilex vomitoria - yaupon
Aralinaceae	- ARASP	Aralia spinosa - hercules club
Aristolochiaceae	- ARSE	Aristolochia serpentaria - Virginia snakeroot
	- HEAR	Hexastylis arifolia - wild ginger
Balsaminaceae	- IMCA	Impatiens capensis - jewelweed
Betulaceae	- ALSE	Alnus serrulata - tag alder
	- BENI	Betula nigra - river birch
	- CACA	Carpinus caroliniana - ironwood
Bignoniaceae	- BICA	Bignonia capreolata - crossvine
Campanulaceae	- LOCA	Lobelia cardinalis - cardinal flower

	- LOEL	Lobelia elongata - elongated lobelia
	- SPZE	Sphenoclea zeylandica - chicken spike
Caprifoliaceae	- LOJA	Lonicera japonica - Japanese honeysuckle
	- SACA	Sambucus canadensis - elderberry
	- VISP.	Viburnum sp.
	- VIDE	Viburnum dentatum - arrowwood
	- VINU	Viburnum nudum - possum haw
	- VIPR	Viburnum prunifolium - black haw
	- VIRU	Viburnum rufidulum - blue haw
Caryophyllaceae	- PARI	Paronychia riparia -
Celastraceae	- EUAM	Euonymus americanus - strawberry bush
Chenopodiaceae	- CHAM	Chenopodium ambrosioides - Mexican tea
Compositae	- ANCA	Antennaria caroliniana - pussy-toes
	- ASSP.	Aster sp.
	- ASVI	Aster vimineus - small white aster
	- BAHA	Baccharis halimifolia - groundsel tree
	- BISP.	Bidens sp. - beggar ticks
	- BIDI	Bidens discoidea - swamp beggar ticks
	- BIFR	Bidens frondosa - devil's beggar ticks
	- CHRSE	Chrysanthemum segetum - ox-eye daisy
	- CORSP.	Coreopsis sp.
	- ECAL	Eclipta alba - yerba de tajo
	- ELTO	Elephantopus tomentosus - elephant's foot
	- ERCA	Erigeron canadensis - horseweed
	- ERHI	Erechtites hieracifolia - fireweed
	- EUSP.	Eupatorium sp.
	- EUCA	Eupatorium capillifolium - dogfennel

	- EUCO	Eupatorium compositifolium - dogfennel
	- EUPE	Eupatorium perfoliatum - boneset
	- EUUR	Eupatorium rugosum - thoroughwort
	- KRSP.	Krigia sp.
	- LASP.	Latuca sp.
	- LACA	Latuca canadensis - wild lettuce
	- MISC	Mikania scandens - climbing hempweed
	- PLCA	Pluchea camphorata - marsh fleabane
	- SOLSP.	Solidago sp.
	- SOGI	Solidago gigantea - goldenrod
Convolvulaceae	- CUSP.	Cuscuta sp. - dodder
	- JATA	Jacquemontia tamnifolia - hairy cluster-vine
Cornaceae	- COAM	Cornus amomum - dogwood
	- COFL	Cornus florida - flowering dogwood
	- COSP.	Cornus sp. - dogwood
	- COFO	Cornus foemina - stiff dogwood
Cruciferae	- NASP.	Nasturtium sp. -
	- NAOF	Nasturtium officinale - watercress
Ebenaceae	- DIVI	Diospyros virginiana - persimmon
Ericaceae	- LEAX	Leucothoe axillaris - leucothoe
	- LYLU	Lyonia lucida - fetter-bush
	- OXAR	Oxydendrum arboreum - sourwood
	- RHSP.	Rhododendron sp. - azalea
	- RHVI	Rhododendron viscosum - swamp azalea
	- VASP.	Vaccinium sp.
	- VACO	Vaccinium corymbosum - blueberry
	- VAAR	Vaccinium arboreum - sparkleberry
	- VAVA	Vaccinium vacillans - blueberry

Euphorbiaceae	- EUPSP.	Euphorbia sp.
	- TRUR	Tragia urens
Fagaceae	- QUSP.	Quercus sp. - oak
	- QUAL	Quercus alba - white oak
	- QUFA	Quercus falcata - southern red oak
	- QULA	Quercus laurifolia - laurel oak
	- QULY	Quercus lyrata - overcup oak
	- QUMA	Quercus marilandica - blackjack oak
	- QUMI	Quercus michauxii - swamp chestnut oak
	- QUNI	Quercus nigra - water oak
	- QUPH	Quercus phellos - willow oak
	- QUST	Quercus stellata - post oak
	- QUST var MA	Quercus stellata var. margarettae - scrubby post oak
Gentianaceae	- OBVI	Obolaria virginica - pennywort
	- SASP.	Sabatia sp. - pink
	- SABCA	Sabatia calycina - marsh pink
Guttiferae	- HYMU	Hypericum mutilum - dwarf St. John's wort
	- HYSP.	Hypericum sp. - St. John's wort
	- TRSP.	Triadenum sp.
	- TRWA	Triadenum walteri - marsh St. John's wort
Halorrhagidaceae	- MYBR	Myriophyllum brasiliense - parrot feather
Hamamelidaceae	- LIST	Liquidambar styraciflua - sweetgum
Hydrophyllaceae	- HYQU	Hydrolea quadrivalvis - water-pod
Juglandaceae	- CARYSP.	Carya sp. - hickory
Labiatae	- LYCOSP.	Lycopus sp. - bugleweed
	- LYRU	Lycopus rubellus - taper-leaf bugleweed
Lauraceae	- LIBE	Lindera benzoin - spicebush

	- PEBO	Persea borbonia - red bay
	- SAAL	Sassafras albidum - sassafras
Leguminosae	- AEIN	Aeschynomene indica - joint vetch
	- APAM	Apios americana - American potato bean
	- CEVI	Centrosema virginianum - butterfly pea
	- CLMA	Clitoria mariana - butterfly pea
	- DETO	Desmodium tortuosum - beggars lice
	- LESP.	Lespedeza sp. - lespedeza
	- LECU	Lespedeza cuneata - sericea
	- RONA	Robinia nana - locust
	- WIFR	Wisteria frutescens - wisteria
Loganiaceae	- GESE	Gelsemium sempervirens - yellow jessamine
	- POPR	Polypremum procumbens
Lythraceae	- AMCO	Ammannia coccinea - purple ammannia
	- DEVE	Decodon verticillatus - water willow
Magnoliaceae	- LITU	Liriodendron tulipifera - yellow poplar, tuliptree
	- MAVI	Magnolia virginica - sweet bay
Malvaceae	- HIMI	Hibiscus militaris - halberd-leaved marshmallow
	- HIMO	Hibiscus moscheutos - rose mallow
Menispermaceae	- COCCA	Cocculus carolinus - coralbeads
Moraceae	- MORU	Morus rubra - red mulberry
Myricaceae	- MYCE	Myrica cerifera - wax myrtle
	- MYHE	Myrica heterophylla - bayberry
Nymphaeaceae	- NYOD	Nymphaea odorata - water lily
Nyssaceae	- NYAQ	Nyssa aquatica - watergum
	- NYSY	Nyssa sylvatica - black gum
Oleaceae	- FRCA	Fraxinus caroliniana - water ash

[redacted]

TABLE 1 (continued) Page 7 of 11

	- FRPE	Fraxinus pennsylvanica - green ash
	- FRSP.	Fraxinus sp. - ash
Onagraceae	- LUSP.	Ludwigia sp. - seedbox
	- LUAL	Ludwigia alternifolia - bushy seedbox
	- LUDE	Ludwigia decurrens - primrose willow
	- LUGL	Ludwigia glandulosa - cylindric-fruit seedbox
	- LULE	Ludwigia leptocarpa - river seedbox
	- LULI	Ludwigia linearis - narrow leaf seedbox
	- LUPA	Ludwigia palustris - marsh seedbox
Oxalidaceae	- OXSP.	Oxalis sp. - wood sorrel
Polygalaceae	- POLU	Polygala lutea - orange milkwort
Polygonaceae	- BRCI	Brunnichia cirrhosa - ladies'-eardrops
	- POSP.	Polygonum sp. - smartweed
	- POHYD	Polygonum hydropiper - marshpepper smartweed
	- POHY	Polygonum hydropiperoides - swamp smartweed
	- POPU	Polygonum punctatum - dotted smartweed
	- POSA	Polygonum sagittatum - arrow-leaf tearthumb
	- POSE	Polygonum setaceum - swamp smartweed
Primulaceae	- LYSP.	Lysimachia sp. - loosestrife
Rhamnaceae	- BESC	Berchemia scandens - supplejack
Rosaceae	- CRSP.	Crataegus sp. - hawthorn
	- PRAN	Prunus angustifolia - chickasaw plum
	- PRSE	Prunus serotina - black cherry
	- RUSP.	Rubus sp. - blackberry
	- SOSP.	Sorbus sp. - chokeberry
	- SOAR	Sorbus arbutifolia - red chokeberry
Rubiaceae	- CEOC	Cephalanthus occidentalis - buttonbush
	- DIOVI	Diodia virginiana - Virginia buttonweed

	- GASP.	Galium sp. - bedstraw
	- GACI	Galium circaezans - wild licorice
	- GAOB	Galium obtusum - bluntleaf bedstraw
	- GATI	Galium tinctorium - stiff marsh bedstraw
	- MIRE	Mitchella repens - partridge berry
	- OLUN	Oldenlandia uniflora - clustered bluet
Salicaceae	- SANI	Salix nigra - black willow
Saururaceae	- ITVI	Itea virginica - Virginia willow
	- SACE	Saururus cernuus - lizard's tail
Saxifragaceae	- DEBA	Decumaria barbara - climbing hydrangea
Scrophulariaceae	- AGPU	Agalinis purpurea - large purple false-foxglove
	- LISP.	Lindernia sp. - false pimpernel
	- MIAL	Mimulus alatus - sharp-wing monkey flower
	- MIRI	Mimulus ringens
Styracaceae	- STAM	Styrax americana - storax
Theaceae	- GOLA	Gordonia lasianthus - loblolly bay
Ulmaceae	- CELA	Celtis laevigata - sugarberry
	- PLAQU	Planera aquatica - planer-tree, water elm
	- ULAL	Ulmus alata - winged elm
	- ULAM	Ulmus americana - American elm
Umbelliferae	- CIMA	Cicuta maculata - water hemlock
	- HYRA	Hydrocotyle ranunculoides - floating pennywort
	- HYVE	Hydrocotyle verticillata - whorled pennywort
Urticaceae	- BOCY	Boehmeria cylindrica - false nettle
	- PIPU	Pilea pumila - clearweed
Verbenaceae	- CALAM	Callicarpa americana - beauty-berry
Violaceae	- VIOSP.	Viola sp. - violet

Vitaceae	- PAQU	Parthenocissus quinquefolia - Virginia creeper
	- AMAR	Ampelopsis arborea - peppervine
	- VICI	Vitis cinerea - pigeon grape
	- VIRO	Vitis rotundifolia - muscadine

MONOCOTYLEDONEAE:

Alismataceae	- SAGSP.	Sagittaria sp.
	- SALA	Sagittaria latifolia - broad-leaf arrowhead
	- SAMO	Sagittaria montevidensis - giant arrowleaf
Araceae	- PEVI	Peltandra virginica - duck potato
Bromeliaceae	- TIUS	Tillandsia usneoides - Spanish moss
Commelinaceae	- COVI	Commelina virginica - day flower
	- MUKE	Murdannia keisak - marsh dewflower
	- TRASP.	Tradescantia sp. - spiderwort
Cyperaceae	- CARSP.	Carex sp. - sedge
	- CAAM	Carex amphibola - narrow-leaf sedge
	- CADI	Carex digitalis - slender wood sedge
	- CAFO	Carex folliculata
	- CAJO	Carex joorii - cypress swamp sedge
	- CARO	Carex rosea
	- CYSP.	Cyperus sp. - flatsedge
	- CYAL	Cyperus albomarginatus - white-edge cyperus
	- CYST	Cyperus strigosus - straw-color flatsedge
	- DUAR	Dulichium arundinaceum - three-way sedge
	- ELESP.	Eleocharis sp. - spikerush
	- RHYSP.	Rhynchospora sp. - beakrush
	- RHYCO	Rhynchospora corniculata - short-bristle beakrush
	- SCSP.	Scirpus sp. - bulrush

	- SCCY	Scirpus cyperinus - woolgrass
Dioscoreaceae	- DIVIL	Dioscorea villosa - wild yam
Gramineae	- ANSP.	Andropogon sp. - broomsedge
	- ANVI	Andropogon virginicus - broomsedge
	- ARGI	Arundinaria gigantea - giant cane
	- CHSE	Chasmanthium sessiflorium - long-leaf spikegrass
	- CYDA	Cynodon dactylon - bermuda grass
	- DISA	Digitaria sanguinalis - crab grass
	- ECSP.	Echinochola sp.
	- ECCO	Echinochola colonum - jungle rice
	- ECCR	Echinochola crusgalli - barnyard grass
	- ERGI	Erianthus giganteus - plumegrass
	- FESP.	Festuca sp. - fescu
	- GLSP.	Glyceria sp. - manna grass
	- LEESP.	Leersia sp. - cutgrass
	- LEOR	Leersia oryzoides - rice ctgrass
	- LEVI	Leersia virginia - whitegrass
	- PANSP.	Panicum sp. - panic grass
	- PASC	Panicum scoparium
	- PAVE	Panicum verrucosum - warty panic grass
	- PASP	Paspalum sp.
	- PAFL	Paspalum floridanum - Florida paspalum
	- PAUR	Paspalum urvillei - vasey grass
	- POAU	Poa autumnalis - autumn bluegrass
	- SESP.	Setaria sp. - foxtail grass
	- SPPE	Sphenopholis pennsylvanica - swamp wedgescale
Hydrocharitaceae	- EGDE	Egeria densa

	- ELSP.	Elodea canadensis - water weed
Juncaceae	- JUCO	Juncus coriaceus - leathery rush
	- JUEF	Juncus effusus - soft rush
	- JUSP.	Juncus sp. - rush
	- LUZSP.	Luzula sp. - woodrush
Lemnaceae	- LEMSP.	Lemna sp. - duckweed
Liliaceae	- SMSP.	Smilax sp. - catbrier
	- SMGL	Smilax glauca - catbrier
	- SMLA	Smilax laurifolia - bamboo catbrier
	- SMRO	Smilax rotundifolia - roundleaf catbrier
	- SMSM	Smilax smallii - lanceleaf greenbrier
Orchidaceae	- HABSP.	Habenaria sp.
	- HARE	Habenaria repens - water-spider orchid
Palmae	- SAMI	Sabal minor - dwarf palmetto
Typhaceae	- TYLA	Typha latifolia - cattail
Xyridaceae	- XYSP.	Xyris sp. - yellow-eyed grass

* - The acronym was utilized in the field data sheets and within the tables of results.

TABLE 2

EXPLANATION OF DATA TABLES
FOR OVERSTORY, UNDERSTORY, AND SHRUB LAYER

VEGETATION ANALYSIS
(1)
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: (2)

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots (3) Total Subplot Area = (4)

Species Name: (5)							
				(10)			
Plot I.D. #	Diameter (in.)	Basal Area (cm)					
count/avg (6)	(7)	(8)		(11)	(12)	(13)	(14)
total		(9)					(15)
Density							
Dominance							
Frequency					(16)		
Rel. Den.					(17)		
Rel. Dom.					(18)		
Rel. Freq					(19)		
Imp. Val.					(20)		

Species Richness= Diversity=

TABLE 2 (CONTINUED)

EXPLANATION OF DATA TABLES

(1) Identification of Stratum

(2) Identification of Area

(3) Number of Sample Plots

(4) Sample Plot Area

(5) Species Acronym

(6) Number of Plot Occurrences

(7) Number of Individuals Sampled

(8) Average Basal Area Coverage for Species

(9) Total Basal Area Coverage for Species

(10) Total Number of Species

(11) Total Number of Occurrences

(12) Log of Total Number of Individuals

(13) Total Number of Individuals

(14) Average Basal Area for all Species

(15) Total Basal Area for all Species

(16) Summation of Frequency for all Species

(17) Summation of Relative Density for all Species

(18) Summation of Relative Dominance for all Species

(19) Summation of Relative Frequency for all Species

(20) Summation of Importance Values for all Species

TABLE 3

THREATENED AND ENDANGERED PLANT SPECIES OF SRS

The following is a list of T & E species which have been recorded on SRS (Knox and Sharitz, 1990).

SPECIES NAME	COMMON NAME	S.C. STATUS
Astragalus villosus	Milk-pea	* rare
Baptisia lanceolata	Yellow wild indigo	* rare
Bumelia lanuginosa	Woolly bumelia	* rare
Carex decomposita	Cypress knee sedge	* rare
Carex oligocarpa	Few-fruited sedge	* rare
Carya myristiciformis	Nutmeg hickory	threatened
Coreopsis rosea	Pink tickseed	threatened
Croton elliottii	Elliott's croton	* rare
Echinacea laevigata	Smooth purple cone-flower	threatened
Echinodorus tenellus	Little bur-head	threatened
Gaura biennis	Gaura	* rare
Lindera subcoriacea	Bog spice bush	**
Lobelia boykinii	Swamp lobelia	**
Ludwigia spathulata	Florida false loosestrife	* rare
Myriophyllum laxum	Loose water-milfoil	threatened
Nestronia umbellula	Nestronia	**
Nolina georgiana	Sandhill lily	* rare
Paronychia americana	Nailwort	* rare
Platanthera lacera	Green fringed orchid	threatened
Potamogeton foliosus	Pondweed	* rare
Rhexia aristosa	Awned meadow-beauty	* rare
Rhododendron flammeum	Oconee azalea	threatened
Rhynchospora inundata	Beak-rush	* rare

TABLE 3 (cont.)

Rhynchospora tracyi	Beak-rush	* rare
Rorippa sessiliflora	Yellow cress	* rare
Sagittaria isoetiformis	Quill-leaved swamp-potato	threatened
Trepocarpus aethusae	Trepocarpus	* rare
Utricularia floridana	Florida bladderwort	threatened
Utricularia olivacea	Dwarf bladderwort	threatened
Vallisneria americana	Tapegrass	* rare
Vallisneria americana	Tapegrass	* rare

* = unresolved status; currently under review

** = possible candidate for proposed listing

TABLE 4

POSSIBLE THREATENED AND ENDANGERED PLANT SPECIES OF SRS

The following T & E plant species have not been found on SRS, but do occur in similar habitats in nearby counties (Knox and Sharitz, 1990).

SPECIES NAME	COMMON NAME	S.C. STATUS
Agalinis aphylla	Scale leaf gerardia	* rare
Amphicarpum mehlenbergianum	Blue maiden-cane	* rare
Aristolochia tomentosa	Wooly Dutchman's pipe	* rare
Bacopa innominata	Water-hyssop	threatened
Carex chapmanii	Chapman's sedge	**
Delphinium carolinianum	Carolina larkspur	* rare
Elliottia racemosa	Georgia plume	**
Halesia parviflora	Small-flowered silverbell	* rare
Helenium brevifolium	Sneezeweed	endangered
Helenium pinnatifidum	Sneezeweed	* rare
Helianthemum georgianum	Rockrose	* rare
Hymenocallis coronaria	Rocky shoals spider lily	threatened
Ilex amelanchier	Sarvis holley	**
Kalmia cuneata	White wicky	**
Lindera melissifolia	Pondberry	endangered
Litsea aestivalis	Pond spice	***
Lyonia ferruginea	Stagger-bush	threatened
Lysimachia asperulaefolia	Rough-leaved loosestrife	endangered
Menispermum canadense	Moonseed	* rare
Oxypolis canbyi	Canby's cowbane	threatened
Ptilimnium nodosum	Mock bishop's-weed	endangered
Quercus oglethorpensis	Oglethorpe oak	* rare

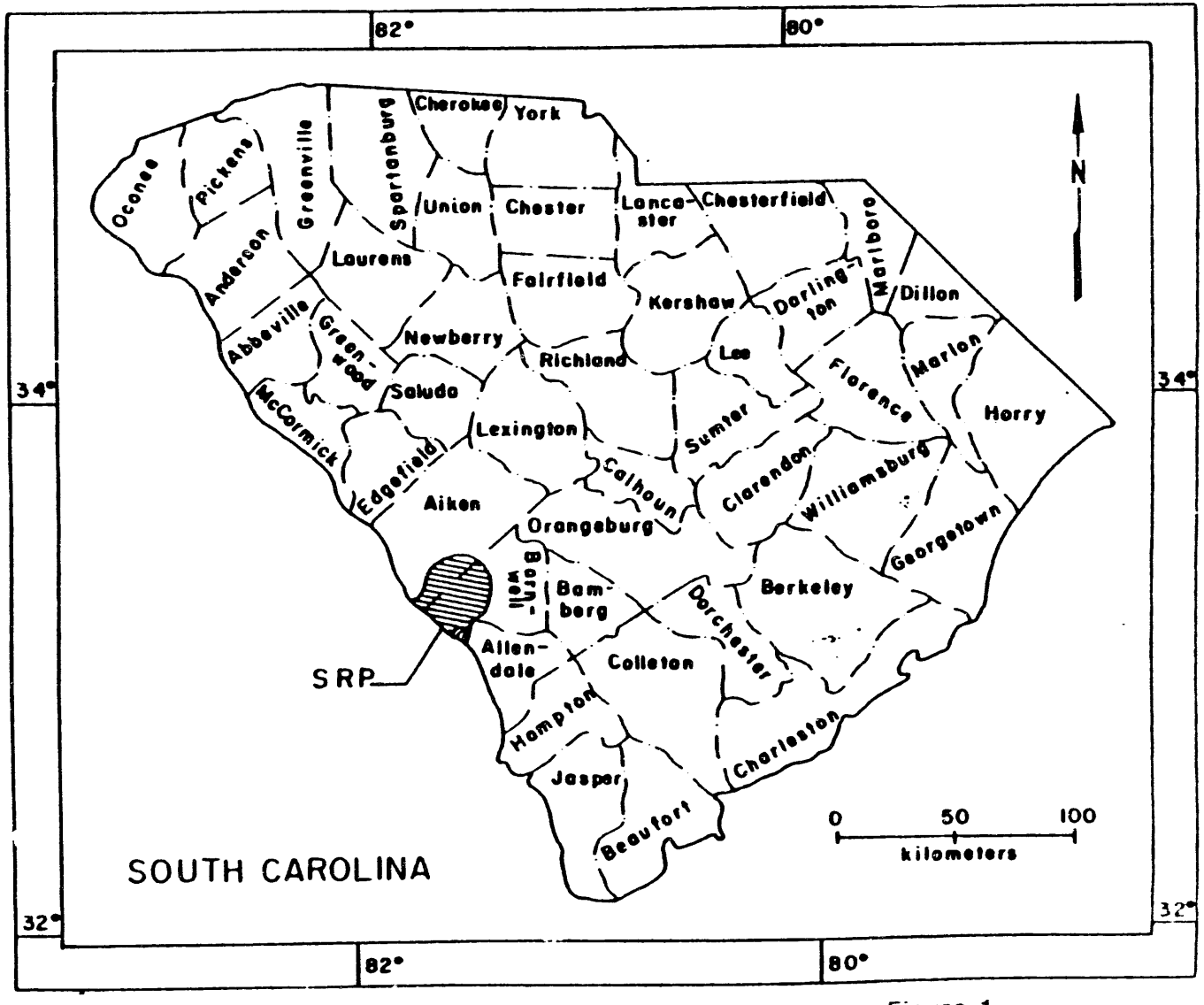
TABLE 4 (cont.)

Ruellia caroliniensis	Ruellia	* rare
Scleria baldwinii	Baldwin's nut-rush	threatened
Spiranthes longilabris	Giant spiral-orchid	threatened
Stillingia aquatica	Queen's root	endangered
Stylisma pickeringii	Pickering's breweria	threatened
Trillium pusillum	Dwarf trillium	threatened
Trillium reliquum	Relict trillium	endangered

* = unresolved status; currently under review

** = possible candidate for proposed listing

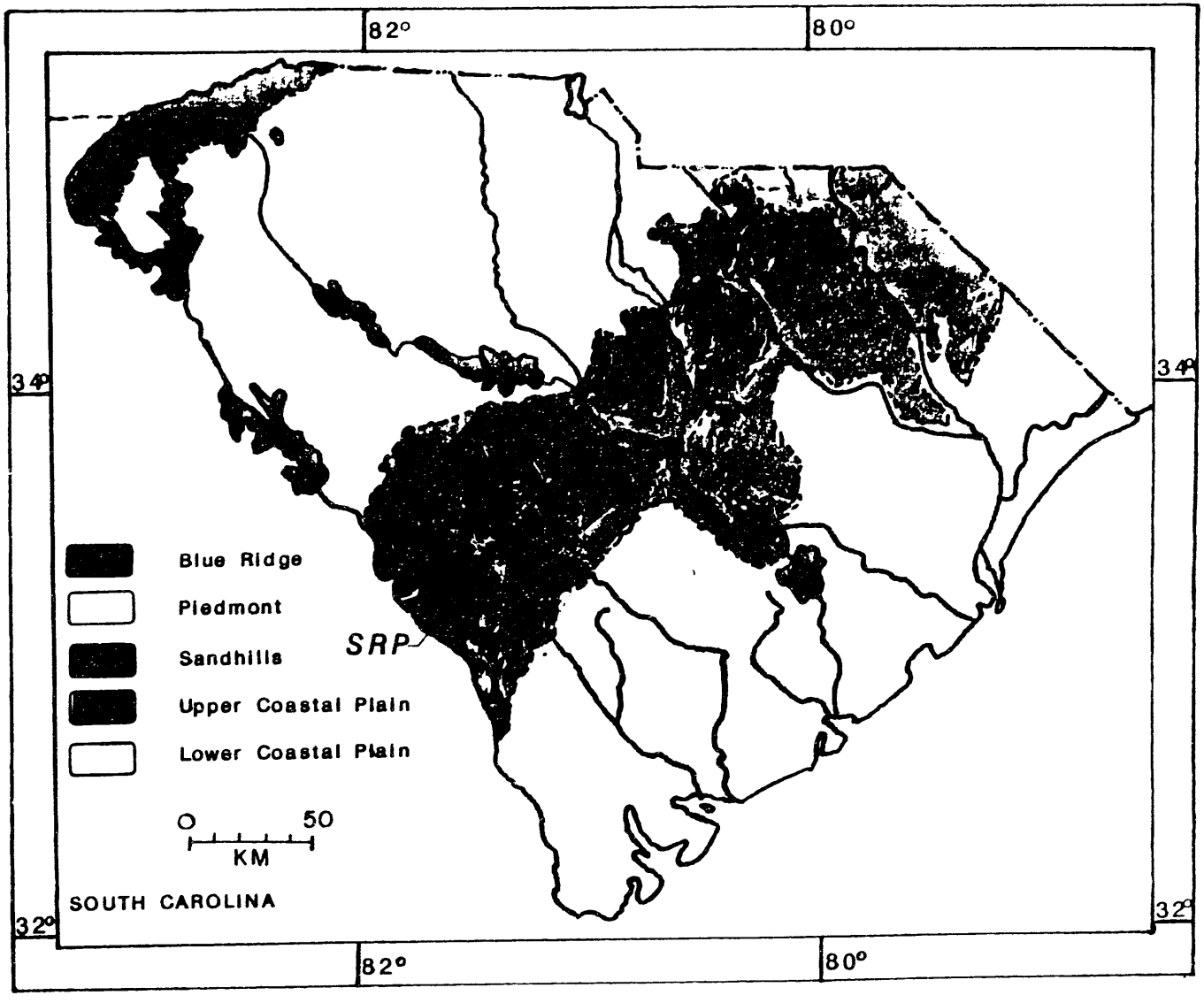
*** = no longer being considered for listing



Reference: Bennett and McFarlane, 1989

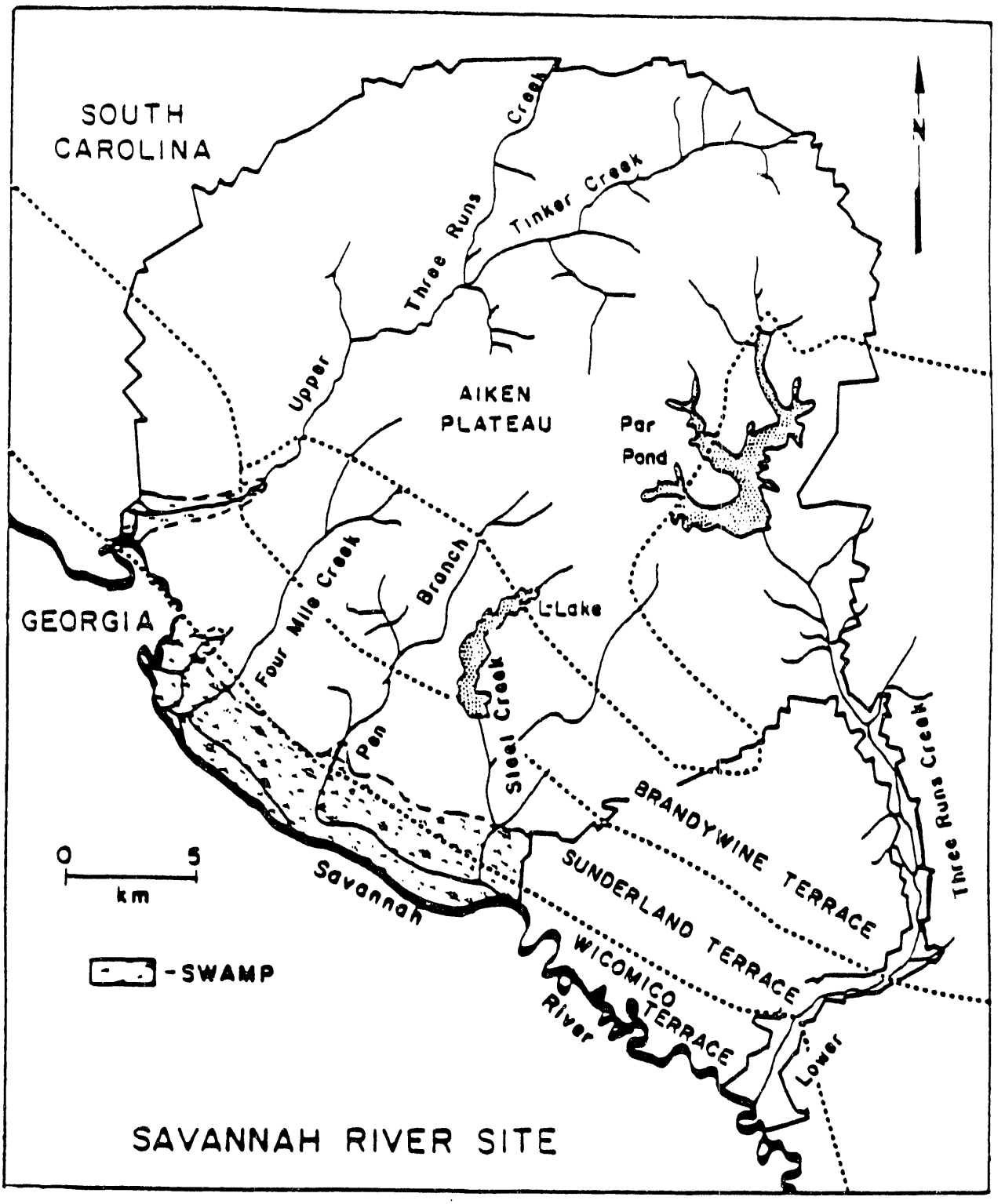
Figure 1

LOCATION OF THE SAVANNAH RIVER PLANT IN SOUTH CAROLINA



Reference: Workman and McLeod, 1990

Figure 2
THE SAVANNAH RIVER SITE IN RELATION TO THE PHYSIOGRAPHIC PROVINCES OF SOUTH CAROLINA



Reference: Workman and McLeod, 1990.

Figure 3
LOCATION OF THE PLEISTOCENE COASTAL TERRACES ON THE SAVANNAH RIVER SITE

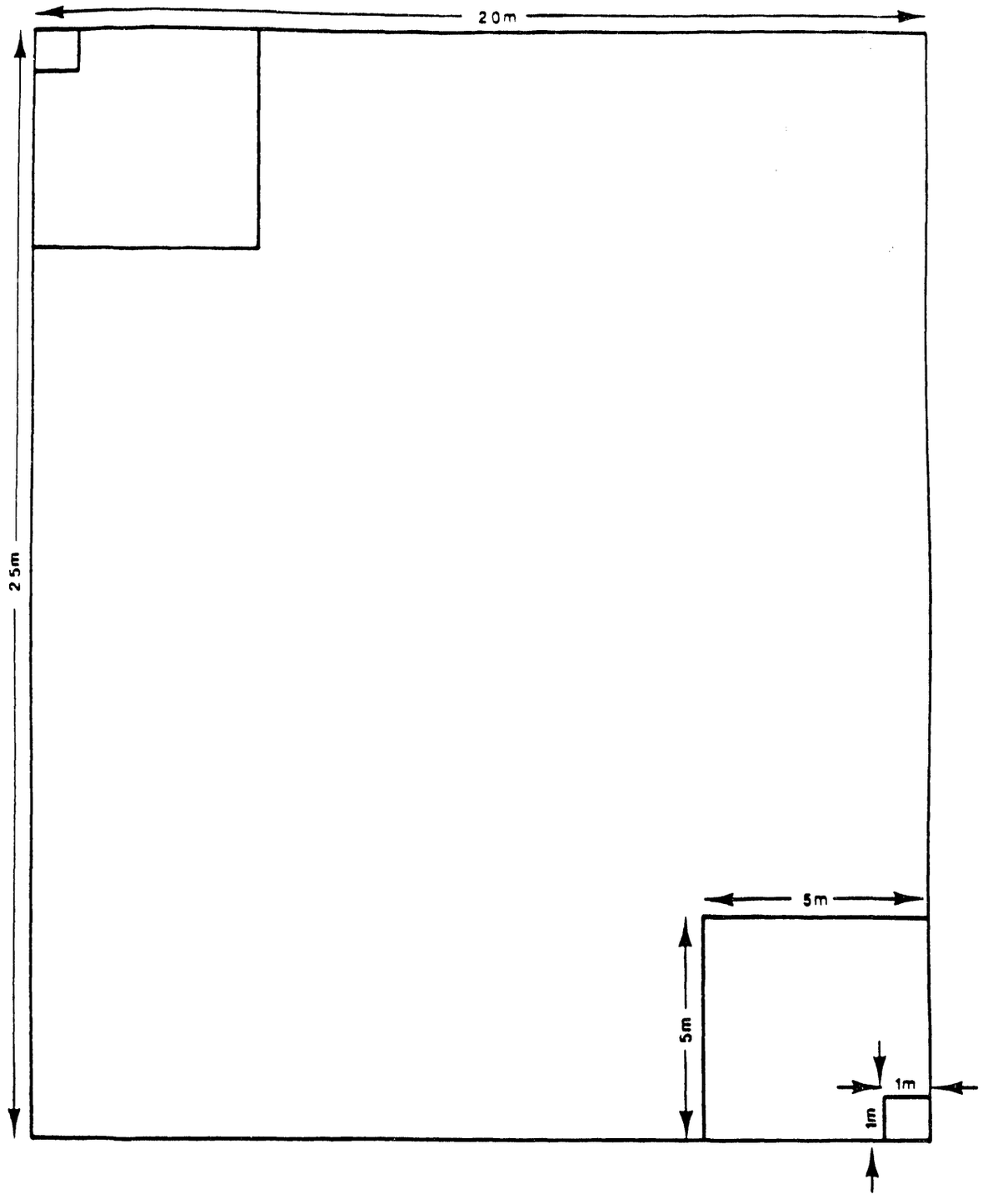


Figure 4
QUADRAT SAMPLING METHOD TASK
#14 VEGETATIONAL SAMPLING STUDY

Dames & Moore

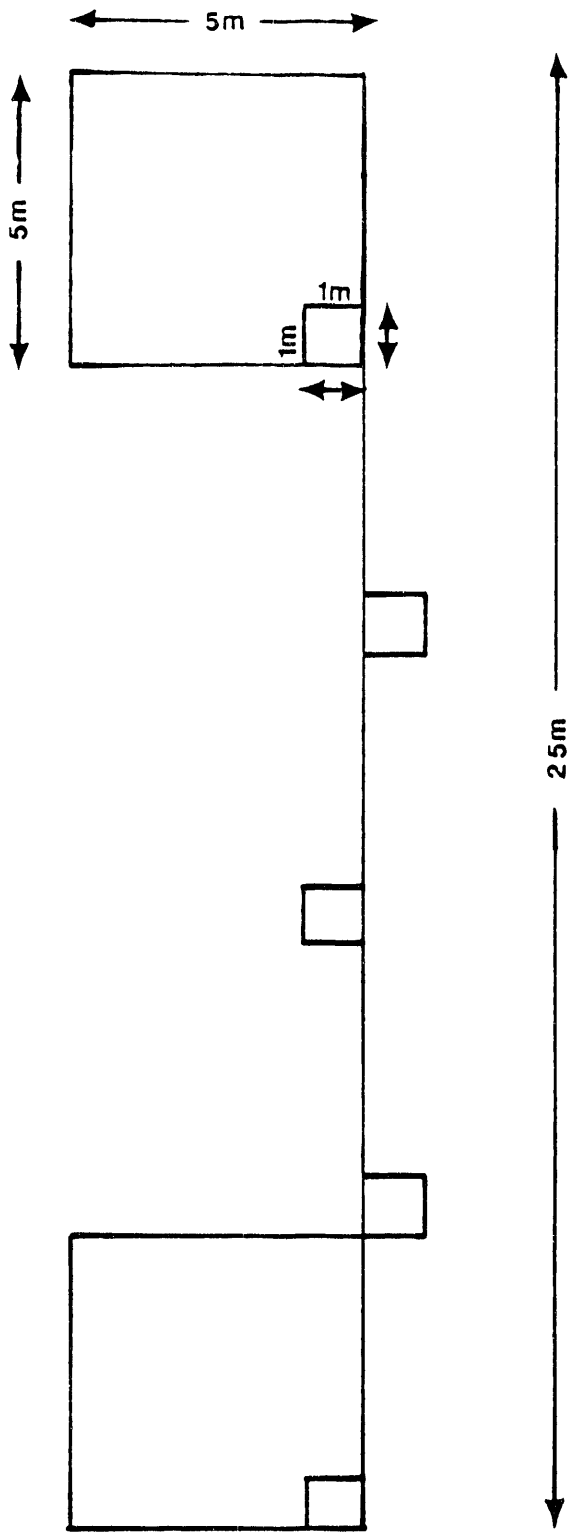


Figure 5
LINEAR TRANSECT SAMPLING METHOD TASK
#14 VEGETATIONAL SAMPLING STUDY

Dames & Moore

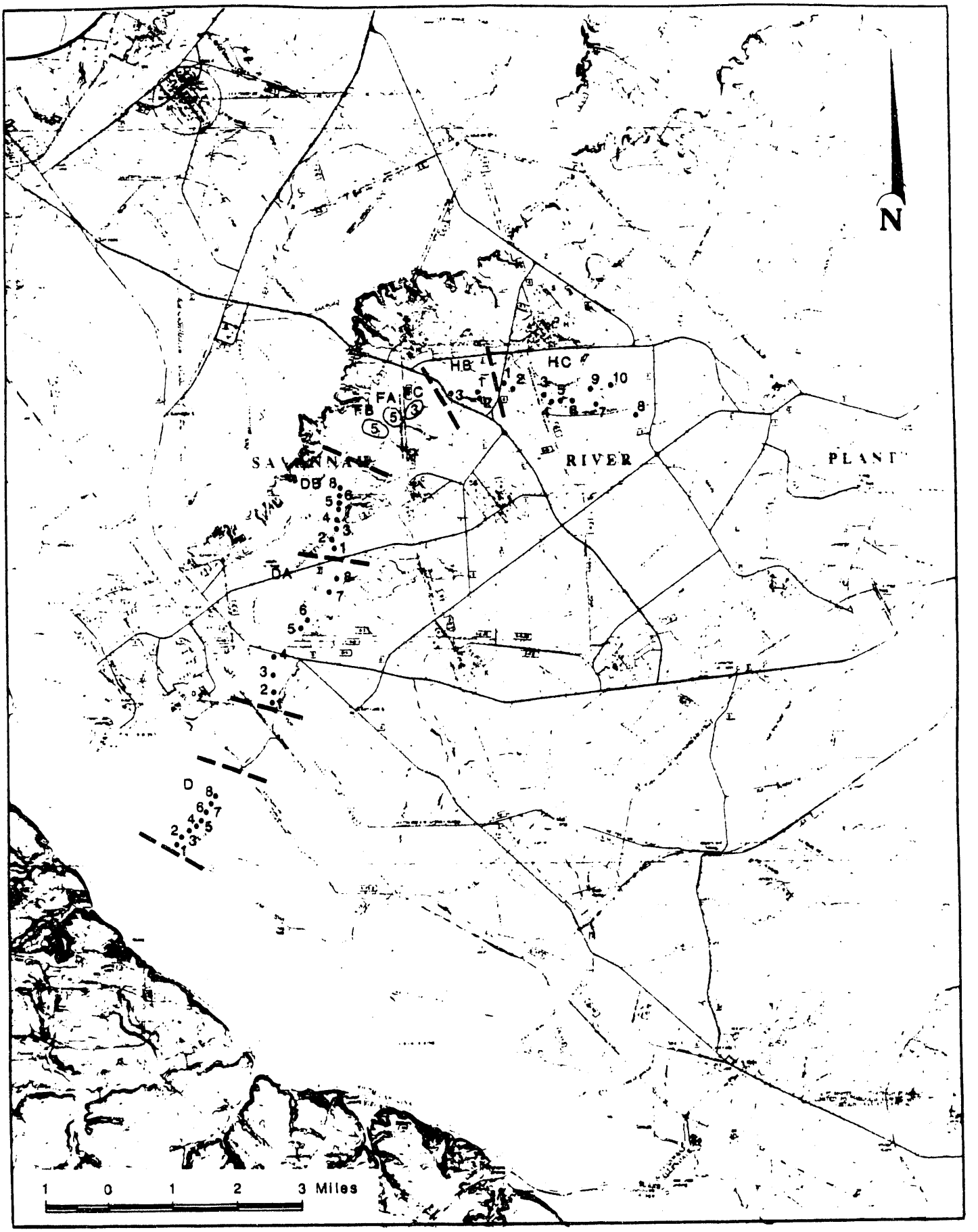


Figure 6
VEGETATION SAMPLING
AREAS AND PLOTS
Four Mile Creek
Dames & Moore

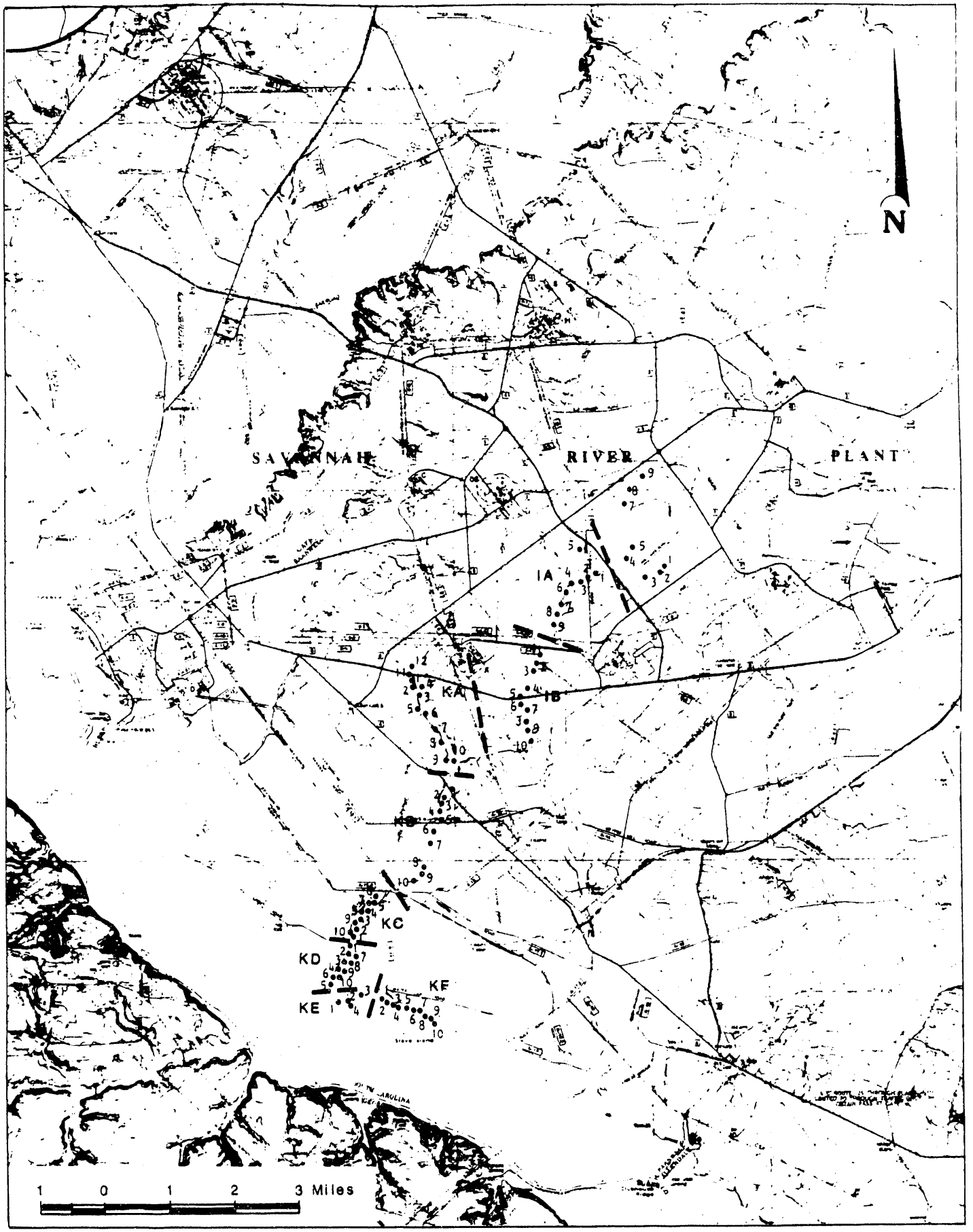


Figure 7
VEGETATION SAMPLING
AREAS AND PLOTS
Pen Branch

Damos & Moore

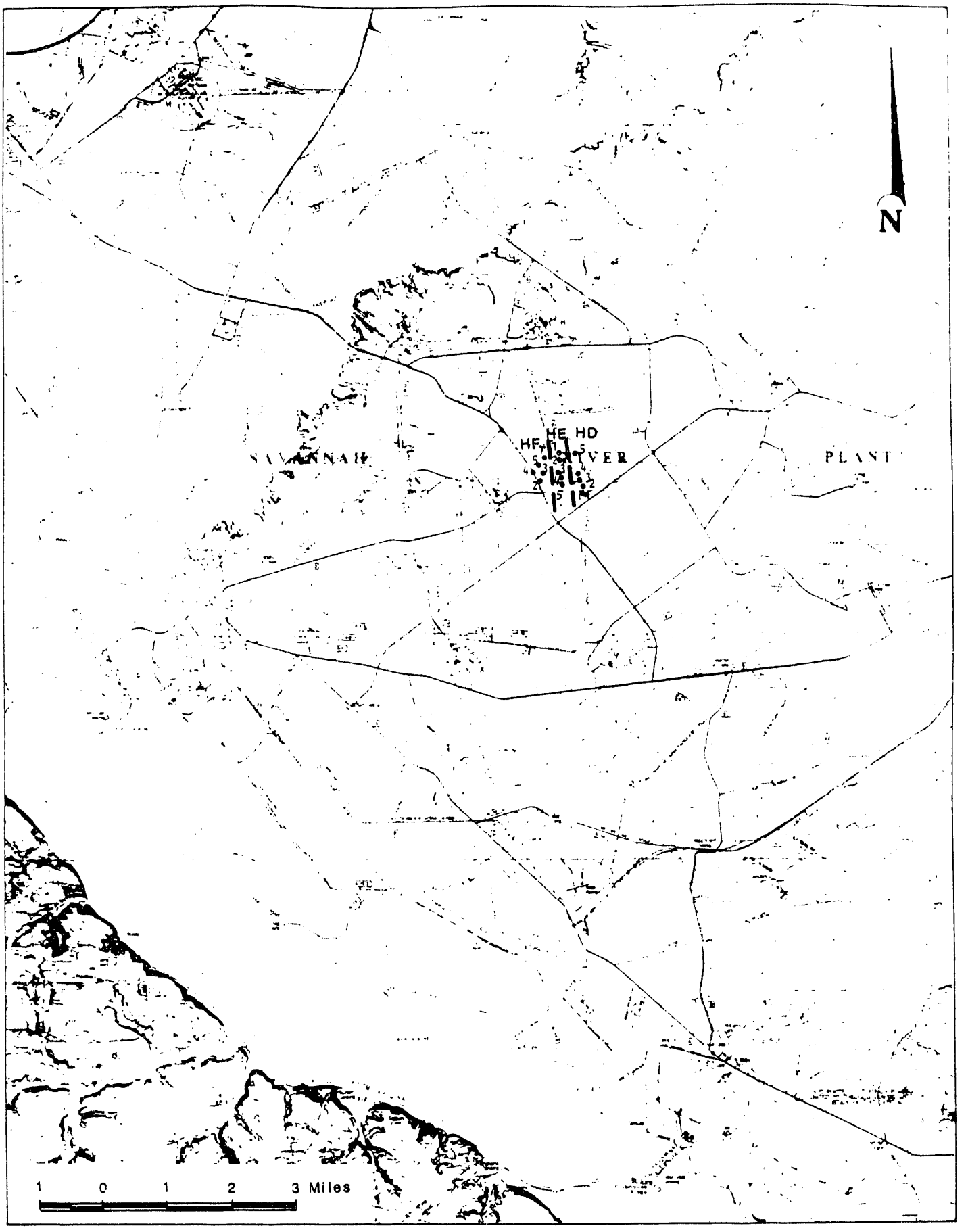


Figure 8
VEGETATION SAMPLING
AREAS AND PLOTS
Pine Uplands
Dames & Moore

7.0 RESULTS AND DISCUSSION - FOUR MILE CREEK

HC AREA

HC Area was designated by SRL to be used as a control area for comparison of the sampling areas. The area was chosen as a control because of the apparent absence of impact from SRS operations; however, the area has been subjected to impacts in the form of extensive beaver construction downstream. The beaver dams have caused the restriction of water flow which may alter the vegetative composition within each stratum. Also, the construction of Youman Road (C-6) has restricted the flow of surface water, thereby causing some ponding of water upstream of the road crossing.

HC Area begins west of F Road at a fork in Four Mile Creek, then extends west along the creek, for approximately 2 miles, to the intersection with Road 4 and Four Mile Creek (Figure 6). This section of the creek is within the Aiken Plateau subregion of the Upper Coastal Plain province and ranges in elevation from 210 feet mean sea level (msl) to 240 feet msl.

Eight sampling plots were established and analyzed within HC Area (Figure 6). Old House Road, Seven Springs Road, and Road E-1 were used for access to the sampling sites.

There were 60 species documented during sampling of the HC Area. Analysis of the species area curve indicates sampling was sufficient to characterize the species diversity of the area after the completion of sample plot 4 (Table HC-1).

The average canopy height was 58 feet for HC Area (Table HC-2).

Overstory Stratum (Table HC-3)

A total of eight plots were sampled in the HC study area. There were a total of 106 individuals representing 15 species, giving a diversity value of 0.88; this characterizes the area as being highly diverse. The dominant species, based on I.V., was yellow poplar (Liriodendron tulipifera) (I.V. 58.72). Following yellow poplar were white oak (Quercus alba) (57.25) and sweet gum (Liquidambar styraciflua) (43.1).

The relative density for yellow poplar was 22.6. Sweet gum was the most frequently occurring species (relative frequency of 15.8), with six individuals being measured within the HC overstory. Red maple (Acer rubrum) and sweet bay (Magnolia virginiana) frequently occurred within HC Area.

Understory Stratum (Table HC-4)

In the HC sampling area, 16 subplots were sampled for understory vegetation. The area has a highly diverse understory flora with a diversity of 0.91. A total of 163 specimens were measured with 22 different species represented. The number of species reflects the transition and integration of community types encountered within the area.

Sweet bay had the highest I.V. (46.6) for the sampling area. Other species with high I.V.'s were American holly (Ilex opaca) (I.V. 36.91), red bay (Persea borbonia) (I.V. 33.97), red maple (I.V. 28.77), and sweet gum (I.V. 27.1).

There were three species with a relative frequency of 11.67 percent. A total of 7 individuals each of American holly, sweet bay, and red maple occurred within the sampling subplots. Sweet bay had the highest relative dominance with a percentage of 18.98 while the species with the greatest relative density was sweet bay (15.95), followed by American holly (14.11).

Shrub Layer Stratum (Table HC-5)

The shrub layer stratum in HC Area was highly diverse with a value of 0.92. There were a total of 23 species occurring within the 16 subplots that were sampled. The dominant species based on the I.V. was tag alder (Alnus serrulata) with a value of 38.79 percent. Other species with I.V.'s of significance are: sweet bay (31.35); red maple (30.43); fetterbush (Lyonia lucida) (30.37); American holly (27.12); and red bay (24.74).

Four species had a relative frequency of 10.53 percent of the sampled stratum. American holly, fetterbush, red maple, and red bay each had six individuals occurring within the HC shrub layer sampling stratum. Tag alder had a relative dominance of 15.74 percent and the greatest relative density (14.29) for the stratum.

Ground Cover Stratum (Table HC-6)

The ground cover stratum within the HC sampling area included collection of data from a total of 16 microplots. For the microplots a total of 42 distinct species were recorded. The species with the highest relative dominance was fetterbush (37.88 percent). Following fetterbush in relative dominance was woolgrass (Scirpus sp.) (10.49 percent) and giant bamboo (Arundinaria gigantea) (7.90 percent). The species possessing the greatest relative frequency of occurrence was fetterbush with a value of 9.88 percent. Each of the remaining ground cover species, other than Netted chain-fern (Woodwardia areolata) (R.F. = 6.17), had relative frequency values lower than 5 percent.

The species with the overall highest I.V. for the HC ground cover was fetterbush (I.V. 47.74), followed by woolgrass (I.V. 15.42) and giant bamboo (I.V. 15.30). With 42 species recorded from 16 subplots, the ground cover vegetation in the HC Area was highly diverse in composition (diversity = 0.83).

HC AREA

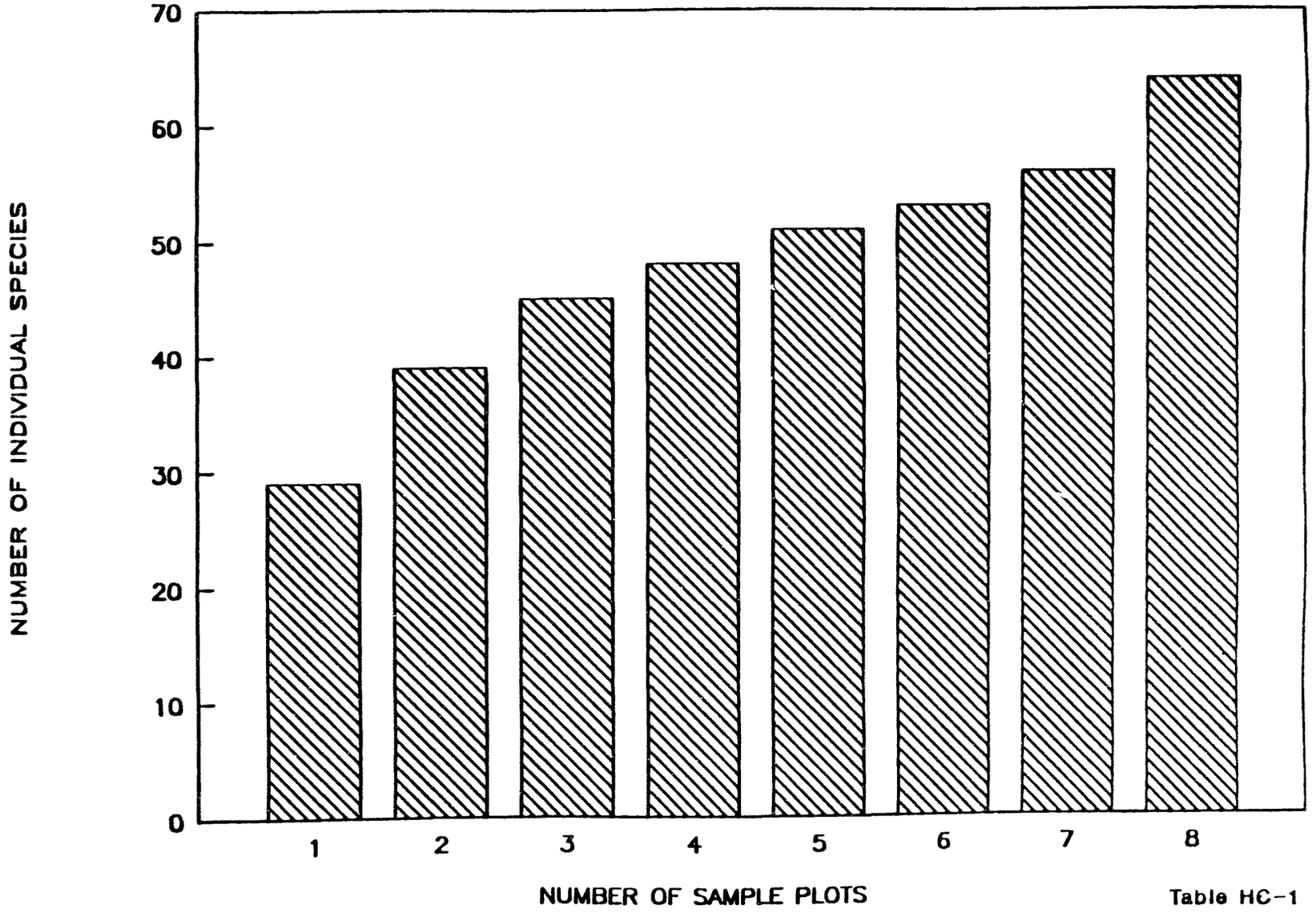


Table HC-1

Dames & Moore

Table HC-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

	Species Name: Li st Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ac ru Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Li tu Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ma vi Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	17	301.9 5132.0	5	9	251.5 2263.9	5	24	435.3 10447.2	3	11	121.0 1330.7
Density	2.13			1.13			3.00			1.38		
Dominance	641.50			282.98			1305.90			166.34		
Frequency	0.75			0.63			0.63			0.38		
Rel. Den.	16.04			8.49			22.64			10.38		
Rel. Dom.	11.26			4.97			22.92			2.92		
Rel. Freq	15.79			13.16			13.16			7.89		
Imp. Val.	43.09			26.61			58.72			21.19		

Species Richness= 6.912536 Diversity=0.883378

Table HC 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Qu sp Common Name:			Species Name: Il op Common Name:			Species Name: My sy Common Name:			Species Name: Co fl Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	173.2	3	6	193.3	3	3	1845.2	1	1	126.7
		346.4			1159.8			5535.7			126.7
0.25			0.75			0.38			0.13		
43.30			144.97			691.97			15.83		
0.13			0.38			0.38			0.13		
1.89			5.66			2.83			0.94		
0.76			2.54			12.14			0.28		
2.63			7.89			7.89			2.63		
5.28			16.10			22.87			3.85		

Table HC 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Qu al Common Name:	Species Name: Qu ni Common Name:	Species Name: Qu ly Common Name:	Species Name: Ac savl Common Name:
Plot I.D. # 4	Plot I.D. # 2	Plot I.D. # 1	Plot I.D. # 1
Diameter (in.) 14	Diameter (in.) 6	Diameter (in.) 1	Diameter (in.) 6
Basal Area (cm) 1091.3	Basal Area (cm) 112.1	Basal Area (cm) 410.4	Basal Area (cm) 288.1
15277.7	672.4	410.4	1728.8
1.75	0.75	0.13	0.75
1909.71	84.04	51.30	216.10
0.50	0.25	0.13	0.13
13.21	5.66	0.94	5.66
33.51	1.47	0.90	3.79
10.53	5.26	2.63	2.63
57.25	12.40	4.48	12.08

Table HC 3-3

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Go la	Species Name: Ca ca	Species Name: Unknown		
Common Name:	Common Name:	Common Name:		15
Plot I.D. #	Plot I.D. #	Plot I.D. #		
Diameter (in.)	Diameter (in.)	Diameter (in.)		
Basal Area (cm)	Basal Area (cm)	Basal Area (cm)		
1 4 164.9	1 1 170.5	1 1 324.3	38 2.025305	106 6009.603
659.4	170.5	324.3		45585.83
0.50	0.13	0.13		
82.43	21.31	40.54		
0.13	0.13	0.13	4.75	
3.77	0.94	0.94	100	
1.45	0.37	0.71	100	
2.63	2.63	2.63	100	
7.85	3.95	4.29	300	

Table HC 3-4

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Unknown a Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Qu ni Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Il op Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Qu al Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	1	1	5.1	6	7	25.3	7	23	17.6	2	2	34.1
total			5.1			177.4			404.7			68.2
Density	0.06			0.44			1.44			0.13		
Dominance	0.32			11.09			25.29			4.26		
Frequency	0.06			0.25			0.44			0.13		
Rel. Den.	0.61			4.29			14.11			1.23		
Rel. Dom.	0.14			4.88			11.13			1.88		
Rel. Freq	1.67			6.67			11.67			3.33		
Imp. Val.	2.42			15.84			36.91			6.44		

Species Richness= 9.492865 Diversity=0.915246

Table HC 4-1

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ma vi Common Name:			Species Name: Qu sp Common Name:			Species Name: Ac ru Common Name:			Species Name: Ly lu Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
7	26	26.5	1	1	7.3	7	13	25.5	2	2	7.3
		689.9			7.3			331.8			14.6
1.63			0.06			0.81			0.13		
43.12			0.46			20.73			0.91		
0.44			0.06			0.44			0.13		
15.95			0.61			7.98			1.23		
18.93			0.20			9.13			0.40		
11.67			1.67			11.67			3.33		
46.60			2.48			28.77			4.96		

Table HC 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Li st Common Name:			Species Name: So sp Common Name:			Species Name: Li tu Common Name:			Species Name: Ca ca Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
5	12	34.6	2	2	5.1	2	4	39.2	3	14	20.0
		414.7			10.2			156.8			279.9
0.75			0.13			0.25			0.88		
25.92			0.64			9.80			17.49		
0.31			0.13			0.13			0.19		
7.36			1.23			2.45			8.59		
11.41			0.28			4.31			7.70		
8.33			3.33			3.33			5.00		
27.11			4.84			10.10			21.29		

Table HC 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ul al			Species Name: Qu ly			Species Name: Pe bo			Species Name: It vi		
Common Name:			Common Name:			Common Name:			Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	2	25.9	1	2	50.8	6	16	32.2	1	1	6.1
		51.7			101.6			514.6			6.1
0.13			0.13			1.00			0.06		
3.23			6.35			32.16			0.38		
0.13			0.06			0.38			0.06		
1.23			1.23			9.82			0.61		
1.42			2.80			14.16			0.17		
3.33			1.67			10.00			1.67		
5.98			5.69			33.97			2.45		

Table HC 4-4

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Go la Common Name:			Species Name: Va co Common Name:			Species Name: Al se Common Name:			Species Name: Sm la Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	4	8.6	1	2	6.1	2	9	8.5	1	4	1.8
		34.6			12.3			76.6			7.2
	0.25			0.13			0.56			0.25	
	2.16			0.77			4.79			0.45	
	0.06			0.06			0.13			0.06	
	2.45			1.23			5.52			2.45	
	0.95			0.34			2.11			0.20	
	1.67			1.67			3.33			1.67	
	5.07			3.23			10.96			4.32	

Table HC 4-5

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Unknown b Common Name:		Species Name: Unknown Tree Common Name:		22	
Plot I.D. #	Diameter (in.) Basal Area (cm)	Plot I.D. #	Diameter (in.) Basal Area (cm)		
1	1 42.6	1	15 15.1	60 2.212187	163 445.3646
	42.6		226.4		3634.169
0.06		0.94			
2.66		14.15			
0.06		0.06		3.75	
0.61		9.20		100	
1.17		6.23		100	
1.67		1.67		100.00	
3.45		17.10		300	

Table HC 4-6

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Li st Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Il op Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ma vi Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Unknown e Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	6	1.1	6	12	1.8	5	14	2.4	1	1	1.3
total			6.7			21.7			33.0			1.3
Density	0.38			0.75			0.88			0.06		
Dominance	0.42			1.36			2.06			0.08		
Frequency	0.19			0.38			0.31			0.06		
Rel. Den.	3.73			7.45			8.70			0.62		
Rel. Dom.	2.81			9.14			13.88			0.53		
Rel. Freq	5.26			10.53			8.77			1.75		
Imp. Val.	11.80			27.12			31.35			2.91		

Species Richness= 9.515929 Diversity=0.919565

Table HC 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

SHRUB LAY

BELT TRANSECT SITE: HC 1-8

HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Unknown f Common Name:			Species Name: Ac ru Common Name:			Species Name: Li tu Common Name:			Species Name: Ly lu Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	2.5	6	13	2.2	1	1	0.2	6	21	0.8
		2.5			28.1			0.2			16.2
0.06			0.81			0.06			1.31		
0.16			1.76			0.01			1.01		
0.06			0.38			0.06			0.38		
0.62			8.07			0.62			13.04		
1.04			11.83			0.09			6.80		
1.75			10.53			1.75			10.53		
3.42			30.43			2.46			30.37		

Table HC 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Qu ni Common Name:			Species Name: My he Common Name:			Species Name: Ca am Common Name:			Species Name: Al se Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	11	0.7	1	1	0.2	1	1	0.8	5	23	1.6
		7.7			0.2			0.8			37.4
0.69			0.06			0.06			1.44		
0.48			0.01			0.05			2.34		
0.13			0.06			0.06			0.31		
6.83			0.62			0.62			14.29		
3.24			0.09			0.34			15.74		
3.51			1.75			1.75			8.77		
13.58			2.46			2.72			38.79		

Table HC 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name:	Species Name:	Species Name:	Species Name:
It vi	Pe bo	Unknown g	Vi ru
Common Name:	Common Name:	Common Name:	Common Name:
Plot I.D. # Diameter (in.) Basal Area (cm)	Plot I.D. # Diameter (in.) Basal Area (cm)	Plot I.D. # Diameter (in.) Basal Area (cm)	Plot I.D. # Diameter (in.) Basal Area (cm)
3 8 2.5	6 16 0.6	1 3 0.9	1 2 0.4
19.9	10.2	2.7	0.8
0.50	1.00	0.19	0.13
1.25	0.64	0.17	0.05
0.19	0.38	0.06	0.06
4.97	9.94	1.86	1.24
8.37	4.28	1.15	0.32
5.26	10.53	1.75	1.75
18.61	24.74	4.77	3.32

Table HC 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: It vi Common Name:			Species Name: Rh sp Common Name:			Species Name: Unknown h Common Name:			Species Name: Go la Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	4	2.5	1	1	0.3	2	15	1.7	1	2	1.7
		9.9			0.3			26.2			3.4
0.25			0.06			0.94			0.13		
0.62			0.02			1.63			0.22		
0.13			0.06			0.13			0.06		
2.48			0.62			9.32			1.24		
4.15			0.13			10.99			1.45		
3.51			1.75			3.51			1.75		
10.15			2.51			23.82			4.44		

Table HC 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HC 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Sm la Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Vi ro Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	2	0.7	1	3	2.4	57 2.206825	161 29.31540
		1.5			7.2		237.9498
0.13			0.19				
0.09			0.45				
0.06			0.06			3.5625	
1.24			1.86			100	
0.62			3.01			100	
1.75			1.75			100	
3.61			6.63			300	

Table HC 5-6

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: HC 1-16 Micro-plot No.: 16

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	3	0.56	0.1875	0.67	3.70	4.38
Al ph	1	0.56	0.0625	0.67	1.23	1.91
Ar gi	6	6.60	0.3750	7.90	7.41	15.30
Be ni	1	0.19	0.0625	0.23	1.23	1.47
Ca di	1	4.70	0.0625	5.62	1.23	6.86
Ch to	3	0.93	0.1875	1.11	3.70	4.82
Cu sp	1	0.19	0.0625	0.23	1.23	1.47
Cy sp	1	0.19	0.0625	0.23	1.23	1.47
Di vi	1	0.19	0.0625	0.23	1.23	1.47
Ele sp	1	0.19	0.0625	0.23	1.23	1.47
Eu sp	1	0.19	0.0625	0.23	1.23	1.47
Ga sp	1	0.19	0.0625	0.23	1.23	1.47
He ar	1	0.56	0.0625	0.67	1.23	1.91
Hy sp	1	0.19	0.0625	0.23	1.23	1.47
Il op	1	0.19	0.0625	0.23	1.23	1.47
Ju ef	1	0.56	0.0625	0.67	1.23	1.91
Lo ja	1	0.19	0.0625	0.23	1.23	1.47
Ly sp	2	1.11	0.1250	1.33	2.47	3.80
Ly lu	8	31.66	0.5000	37.88	9.88	47.75
Ny od	2	0.75	0.1250	0.89	2.47	3.36
Os ci	2	0.75	0.1250	0.89	2.47	3.36
Pa qu	1	0.19	0.0625	0.23	1.23	1.47
Pi ta	1	4.70	0.0625	5.62	1.23	6.86
Po hy	2	0.75	0.1250	0.89	2.47	3.36
Po lu	1	0.19	0.0625	0.23	1.23	1.47
Ru sp	1	0.19	0.0625	0.23	1.23	1.47
Sa la	1	0.19	0.0625	0.23	1.23	1.47
Sa ni	1	0.19	0.0625	0.23	1.23	1.47
Sc sp	4	8.76	0.2500	10.49	4.94	15.42
Sm ro	1	0.56	0.0625	0.67	1.23	1.91
Sm sp	2	0.75	0.1250	0.89	2.47	3.36
Sa ce	2	0.38	0.1250	0.45	2.47	2.92

Table HC 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: HC 1-16 Micro-plot No.: 16

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Th no	1	0.56	0.0625	0.67	1.23	1.91
To ra	4	0.93	0.2500	1.11	4.94	6.05
Unkwn 1	2	1.36	0.1250	1.63	2.47	4.10
Unkwn 2 (grass)	1	2.36	0.0625	2.82	1.23	4.06
Unkwn 3	2	0.38	0.1250	0.45	2.47	2.92
Va ve	1	0.19	0.0625	0.23	1.23	1.47
Vi ro	4	0.38	0.2500	0.45	4.94	5.39
Vi sp	2	1.36	0.1250	1.63	2.47	4.10
Wo ar	5	3.26	0.3125	3.90	6.17	10.08
Xy sp	2	5.25	0.1250	6.28	2.47	8.75
	42	83.53	5.06	100	100	200

Richness= 21.48 Diversity= 0.83

Table HC 6-2

HB AREA

HB Area begins at the intersection of C Road and Four Mile Creek and extends east to Road 4 (Figure 6). This stretch of Four Mile Creek is located within the Aiken Plateau subregion of the Upper Coastal Plain province and ranges in elevation from 200 feet msl to 210 feet msl throughout the 1-mile-long sampling area. There is extensive ponding in this area due to beaver dams constructed below the confluence of Four Mile Creek and an unnamed tributary entering from the north.

Three sampling plots (Figure 6) were established and sampled within HB Area; these were located below the seepage lines delineated by the SRL staff. Access to the sampling sites was gained from Road C.

A total of 32 plants species were documented within the sampling plots of HB Area. Although the species area curve for the area was not satisfied (i.e., did not level off), sampling was completed after the third plot (Table HB-1) because the remaining area was inaccessible due to water. Under advisement by the SRL staff, work was not to be performed in the F- & H-Areas which required the sampling plots to be set up in areas inundated with water.

The average canopy height for the HB Area was 95 feet (Table HB-2).

Overstory Stratum (Table HB-3)

Three subplots were sampled within HB Area for overstory vegetation. A total of 78 individuals were measured within the overstory with 11 species representing this stratum. HB Area consists of a highly diverse assemblage of vegetation. The diversity for the overstory stratum is 0.79.

Based on I.V.'s obtained for HB overstory, the species with the highest value was black gum (Nyssa sylvatica) (I.V. 100.4). Next, in descending order of

importance, were red maple (Acer rubrum) (57.23), sweet gum (Liquidambar styraciflua) (43.0), and yellow poplar (Liriodendron tulipifera) (34.5).

Black gum had both the greatest relative density (34.6) and relative dominance (50.85). There were three species with relative frequency of 15.00 (black gum, red maple, yellow poplar), with each occurring within three sampling plots.

Understory Stratum (Table HB-4)

A total of 27 individuals representing 9 species were sampled within the six HB Area understory subplots. The diversity for this sampling area was 0.82. American holly (Ilex opaca) had nine individuals measured within the subplots for a relative density of 33.3.

American holly was the most frequently occurring species with a relative frequency value of 23.5 percent of the stand. Red maple followed with a value of 17.65 percent. The dominant species according to the I.V., in descending order, were American holly (I.V. 89.85), red maple (I.V. 53.9), and yellow poplar (I.V. 31.6).

Shrub Layer Stratum (Table HB-5)

The measured shrub layer of the HB Area was a highly diverse (diversity of 0.74) assemblage of vegetation. This stratum included a total of 100 measured specimens representing 14 species. The species with the highest I.V. for the six subplots was red bay (Persea borbonia) with a value of 121.12 for the entire sampling area. Other dominant species based on I.V. included American holly (51.17) and fetterbush (Lyonia lucida) (31.55). The remaining 11 species possessed I.V.'s of less than 20 percent and were not considered to be dominant components of the HB Area shrub layer stratum.

The most frequently occurring species was red bay with a relative frequency of 22.2 percent and relative density of 46.0 percent. The American holly had a relative dominance value of 23.65 percent of the area sampled.

Ground Cover Stratum (Table HB-6)

The HB sampling area included ground cover stratum data collection from a total of six microplots and resulted in records for a total of 18 distinct species. The most dominant ground cover stratum species in this sampling area was fetterbush with a dominance of 59.25 percent. The netted chain-fern (Woodwardia areolata) was second in dominance with 13.74 percent, followed by partridge berry (Mitchella repens) with 5.33 percent relative dominance. Netted chain-fern was the most frequent species with a relative frequency of 17.14 percent. The other ground cover species with frequent occurrences included partridge berry and fetterbush (11.43 percent) and American holly (8.57 percent).

The species that had the highest I.V. for the sampled area was fetterbush, with an I.V. of 70.67. This species was followed by netted chain-fern (I.V. 30.9), partridge berry (I.V. 16.76), and American holly (I.V. 10.58).

HB sampling area was moderately diverse with a diversity of 0.62 percent.

HB AREA

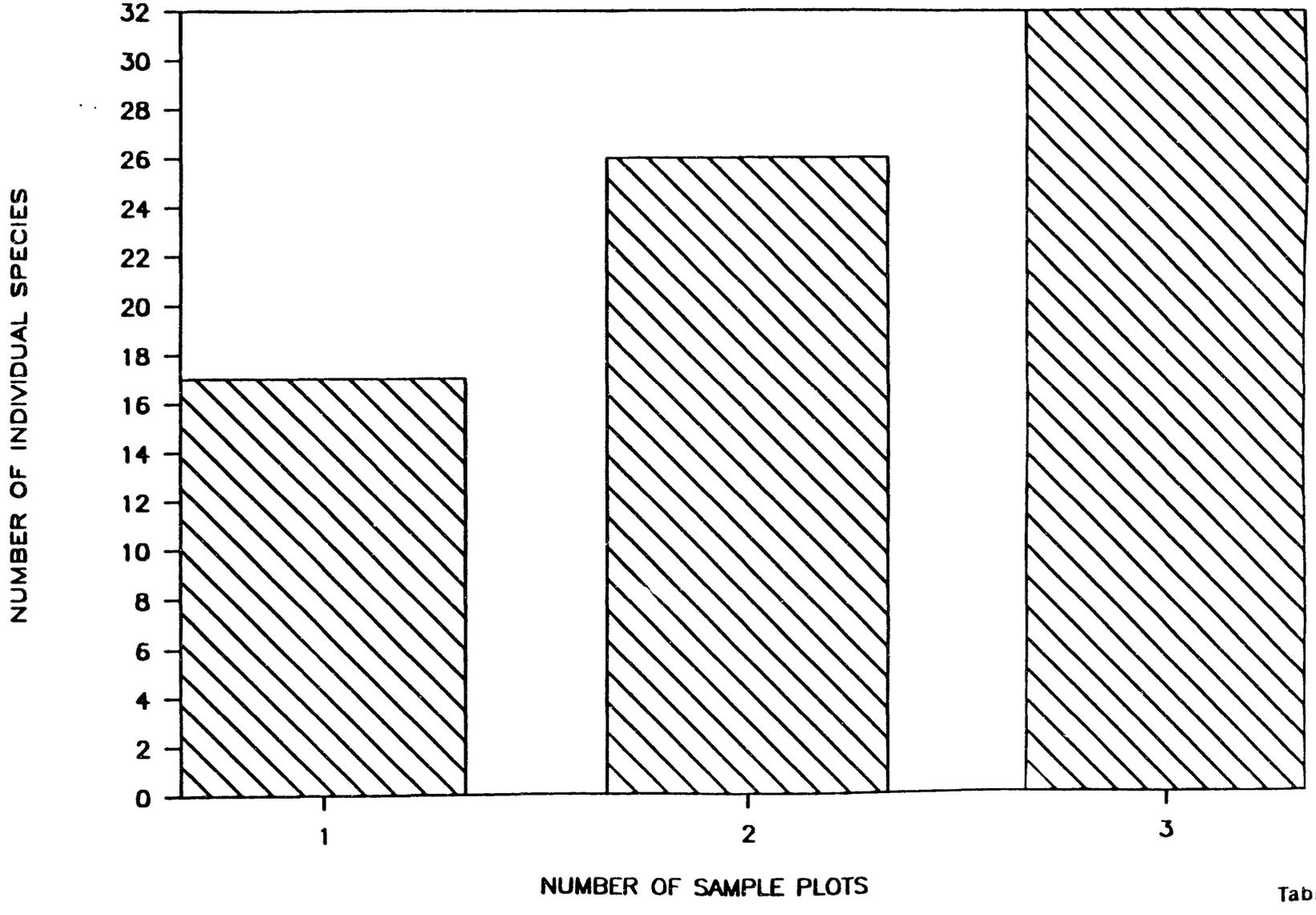


Table HB-1

Dames & Moore

Table HB-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 3 Total Subplot Area = 1500.00

	Species Name: Ny sy			Species Name: Ac ru			Species Name: Li tu			Species Name: Pi ta		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	27	728.7	3	20	320.9	3	8	446.3	1	2	646.7
			19675.5			6418.8			3570.6			1293.3
Density	9.00			6.67			2.67			0.67		
Dominance	6558.50			2139.61			1190.19			431.11		
Frequency	1.00			1.00			1.00			0.33		
Rel. Den.	34.62			25.64			10.26			2.56		
Rel. Dom.	50.85			16.59			9.23			3.34		
Rel. Freq	15.00			15.00			15.00			5.00		
Imp. Val.	100.47			57.23			34.49			10.91		

Species Richness= 4.756633 Diversity=0.791874

Table HB 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 3 Total Subplot Area = 1500.00

Species Name: Il op			Species Name: Li st			Species Name: Pe bo			Species Name: Il de		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	4	135.6	3	10	615.0	2	2	169.7	1	1	81.1
		542.2			6150.3			339.4			81.1
1.33			3.33			0.67			0.33		
180.74			2050.09			113.13			27.02		
0.67			1.00			0.67			0.33		
5.13			12.82			2.56			1.28		
1.40			15.90			0.88			0.21		
9.52			14.29			9.52			4.76		
16.05			43.00			12.97			6.25		

Table HB 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 3 Total Subplot Area = 1500.00

Species Name: Qu ni			Species Name: Ma vi				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	1	81.1	1	3	179.3	21 1.892094	78 3404.376
		81.1			537.9		38690.15
0.33			1.00				
27.02			179.31				
0.33			0.33			7	
1.28			3.85			100	
0.21			1.39			100	
4.76			4.76			100	
6.25			10.00			300	

Table HB 3-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

	Species Name: Ac ru Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Li tu Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Unknown tree Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Il op Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
			0.0			0.0			0.0			0.0
count/avg	3	3	54.4	2	2	40.4	1	1	71.3	4	9	23.8
total			163.3			80.8			71.3			213.9
Density	0.36			0.27			0.48			0.16		
Dominance	0.25			0.12			0.11			0.33		
Frequency	0.50			0.33			0.17			0.67		
Rel. Den.	11.11			7.41			3.70			33.33		
Rel. Dom.	25.18			12.46			10.99			32.99		
Rel. Freq	17.65			11.76			5.88			23.53		
Imp. Val.	53.93			31.63			20.57			89.85		

Species Richness= 5.589075 Diversity=0.823361

Table HB 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Cary sp. Common Name:			Species Name: Ma vi Common Name:			Species Name: Pe bo Common Name:			Species Name: Li st Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
		0.0			0.0			0.0			0.0
1	1	2.9	1	2	3.0	3	7	9.6	1	1	31.7
		2.9			6.1			67.3			31.7
0.02			0.02			0.06			0.21		
0.00			0.01			0.10			0.05		
0.17			0.17			0.50			0.17		
3.70			7.41			25.93			3.70		
0.44			0.94			10.37			4.88		
5.88			5.88			17.65			5.88		
10.03			14.23			53.94			14.47		

Table HB 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^{-2} Subplot Size = 25 m^{-2} # of Subplots 6 Total Subplot Area = 150.00

Species Name: Qu al		
Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)
		0.0
1	1	11.4
		11.4
0.08		
0.02		
0.17		
3.70		
1.76		
5.88		
11.34		

Table HB 4-3

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

	Species Name: Pe bo			Species Name: Il op			Species Name: Qu sp			Species Name: Li st		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	46	2.0	5	9	4.5	2	2	0.5	1	1	0.5
total			90.5			40.4			0.9			0.5
Density	7.67			1.50			0.33			0.17		
Dominance	15.08			6.74			0.15			0.08		
Frequency	1.00			0.83			0.33			0.17		
Rel. Den.	46.00			9.00			2.00			1.00		
Rel. Dom.	52.90			23.65			0.53			0.27		
Rel. Freq	22.22			18.52			7.41			3.70		
Imp. Val.	121.12			51.17			9.94			4.97		

Species Richness= 6.5 Diversity=0.749494

Table HB 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Va sp			Species Name: Ma vi			Species Name: Il de			Species Name: To ra		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	4	2.3	1	5	1.5	1	1	0.8	2	3	0.4
		9.0			7.7			0.8			1.2
0.67			0.83			0.17			0.50		
1.50			1.29			0.14			0.20		
0.33			0.17			0.17			0.33		
4.00			5.00			1.00			3.00		
5.27			4.52			0.47			0.69		
7.41			3.70			3.70			7.41		
16.68			13.23			5.18			11.10		

Table HB 5-2

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Vi pr			Species Name: Vi ru			Species Name: Ly lu			Species Name: Unknown		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.3	1	2	0.3	2	16	0.9	1	1	0.3
		0.3			0.5			13.9			0.3
0.17			0.33			2.67			0.17		
0.05			0.08			2.32			0.05		
0.17			0.17			0.33			0.17		
1.00			2.00			16.00			1.00		
0.19			0.30			8.14			0.19		
3.70			3.70			7.41			3.70		
4.89			6.00			31.55			4.89		

Table HB 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HB 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Qu ni			Species Name: Vi ro		
Plot I.D. #	Diameter (in.)	Basal Are (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)
1	1	0.3	1	8	0.6
		0.3			4.6
0.17			1.33		
0.05			0.77		
0.17			0.17		
1.00			8.00		
0.19			2.70		
3.70			3.70		
4.89			14.41		

Table HB 5-4

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: HB 1-6 Micro-plot No.: 6

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	1	0.50	0.1667	0.68	2.86	3.53
De ba	1	0.50	0.1667	0.68	2.86	3.53
Ga Sp	1	0.50	0.1667	0.68	2.86	3.53
Il De	1	0.50	0.1667	0.68	2.86	3.53
Il Op	3	1.48	0.5000	2.00	8.57	10.58
Im ca	2	0.99	0.3333	1.34	5.71	7.05
Ly Lu	4	43.76	0.6667	59.25	11.43	70.68
Mi Re	4	3.94	0.6667	5.33	11.43	16.76
My ce	1	0.50	0.1667	0.68	2.86	3.53
Os ci	2	1.97	0.3333	2.67	5.71	8.39
Os Re	1	1.48	0.1667	2.01	2.86	4.87
Pe bo	2	0.99	0.3333	1.34	5.71	7.05
To ra	1	0.50	0.1667	0.68	2.86	3.53
Unknown A	1	3.12	0.1667	4.22	2.86	7.08
Unknown Grass	2	1.97	0.3333	2.67	5.71	8.39
Vi Ro	1	0.50	0.1667	0.68	2.86	3.53
Vio sp	1	0.50	0.1667	0.68	2.86	3.53
Wo ar	6	10.15	1.0000	13.74	17.14	30.89
	18	73.85	5.83	100.00	100.00	200.00

Richness= 11.01 Diversity= 0.62

Table HB 6-1

F AREA

The F Area location and description discussion is a composite of the three seepage basins below the effluent of F Area (Figure 6). The individual sampling areas are broken down into the following: FA Area, FB Area, FC Area. The F Area sampling sites are located along Four Mile Creek. FA Area and FB Area are to the west of Road C-4, which connects the C Area reactor to the south, with F Area to the north; FC Area is located to the east of the same road. The F Area sampling sites occur within the Aiken Plateau subregion of the Upper Coastal Plain province. The elevation of the area is approximately 180 feet above msl.

The three separate F Area sites were combined for species curve analyses (Table F-1). Due to the close proximity of the sampling areas, a better representation of the diversity of the F Area stretch of Four Mile Creek may be obtained by this combination.

The data for each section of F Area is separately discussed below.

FA AREA

Five sampling plots were placed within the FA Area, and were located below the seepage lines delineated by SRL staff (Figure 6). This location is the first delineated seepage basin southwest of Road C-4 on Four Mile Creek. Road C-4 was used to gain access to the site.

A total of 46 species were identified within the sampling plots of FA Area. The species area curve (Table FA-1) indicates that additional samples needed to have been taken; however, due to spatial constraints, no further sampling could be accomplished.

FA Area had an average canopy height of 69 feet (Table FA-2).

Overstory Stratum (Table FA-3)

At the SRS, each vegetation stratum was sampled within FA Area. Within the overstory stratum a total of five subplots were analyzed in detail. Over the five subplots, 97 individual trees were measured representing a total of seven distinct species. Based on the I.V. (the sum of the relative density, relative dominance and relative frequency) obtained for the FA overstory, the species with the highest I.V. was the black gum (Nyssa sylvatica) (I.V. 162.48). Next, in descending order of I.V., were sweet bay (Magnolia virginiana) (I.V. 42.52), yellow poplar (Liriodendron tulipifera) (I.V. 38.15), and red maple (Acer rubrum) (I.V. 23.86).

The species with the greatest average basal area was black gum (62,519.1 sq. cm.). The species that possessed the greatest relative density within the sampling area was black gum with a relative density of 65.98 percent of the entire sampled area. Black gum also had the highest relative frequency of overstory trees within the sampled area with five trees present representing a frequency of 26.3 percent of the total overstory.

Based on the subplots sampled the FA overstory vegetation was moderately diverse in composition with a diversity index of 0.54 for the species measured from the five individual subplots.

Understory Stratum (Table FA-4)

The understory vegetation for the FA sampling area included a total of eight species measured from the 10 subplots accounting for a total of 52 individuals. The species with the highest I.V.'s in descending order included American holly (Ilex opaca) (I.V. 82.75), sweet gum (Liquidambar styraciflua) (I.V. 72.8), sweet bay (I.V. 60.75), and red maple (I.V. 37.9). The understory species that was most numerous was sweet gum with 13 individuals tallied from the subplots. Because it was most numerous, sweet gum had the highest relative frequency for the sampling area with 26.09 percent of the entire stand comprised by this species. In addition, the relative density of this species was also greatest within the measured subplots with a relative density of 25 percent. By contrast the species with the largest basal area for the stand was American holly which comprised 43.7 percent of the entire basal area measured for all of the subplots in the understory stratum. The large basal area value (relative dominance of 43.7 percent) of the American holly accounts for the highest I.V. (82.75) recorded for the understory species analyzed from the FA sampling area.

FA understory stratum had a diversity of 0.83 percent.

Shrub Layer Stratum (Table FA-5)

The measured shrub layer of the FA sampling area was a highly diverse assemblage of vegetation (diversity 0.87). For the FA sampling area, this stratum included a total of 147 measured individuals representing 21 species. The species with the highest I.V. for the 10 subplot sampling area was rusty blackhaw (Viburnum rufidulum) with an I.V. of 56.25. Other dominant species based on descending order of I.V. included sweet bay (I.V. 45.6), sweet gum (I.V. 39.25), and American holly

(I.V. 24.9). The remaining 16 species each possessed I.V.'s less than 20 and were not considered to be dominant components of this stratum.

The species with the highest relative density for the shrub sampling layer in the FA Area was rusty blackhaw which accounted for 29.25 percent of the relative density of the entire stand. Sweet bay had the highest relative dominance comprising 28.6 percent of the entire sampled area. The highest relative frequency (of occurrence) in the shrub layer was shared by rusty blackhaw and American holly, both possessing relative frequencies of 13.09 percent for the entire sampled area.

Ground Cover Stratum (Table FA-6)

The ground cover stratum of the FA sampling area consisted of 10 subplot locations. Within the FA Area, a total of 32 distinct species were recorded. The most dominant of the ground cover vegetation recorded from this area was rusty blackhaw with a relative dominance of 17.69 percent. Rusty blackhaw was followed by giant bamboo (Arundinaria gigantea), having relative dominance of 15.78 percent. Netted chain-fern (Woodwardia areolata) was the most frequently occurring species with a relative frequency of 10.77 percent. This species was followed closely by rusty blackhaw with a relative frequency of 9.23 percent. Based on I.V., in descending order of importance, rusty blackhaw (I.V. 26.92), giant bamboo (I.V. 20.39), and netted chain-fern (I.V. 16.52), were the dominant components of the ground cover vegetation stratum. The ground cover stratum of the FA Area represented a highly diverse vegetation community (diversity = 0.91).

F AREA

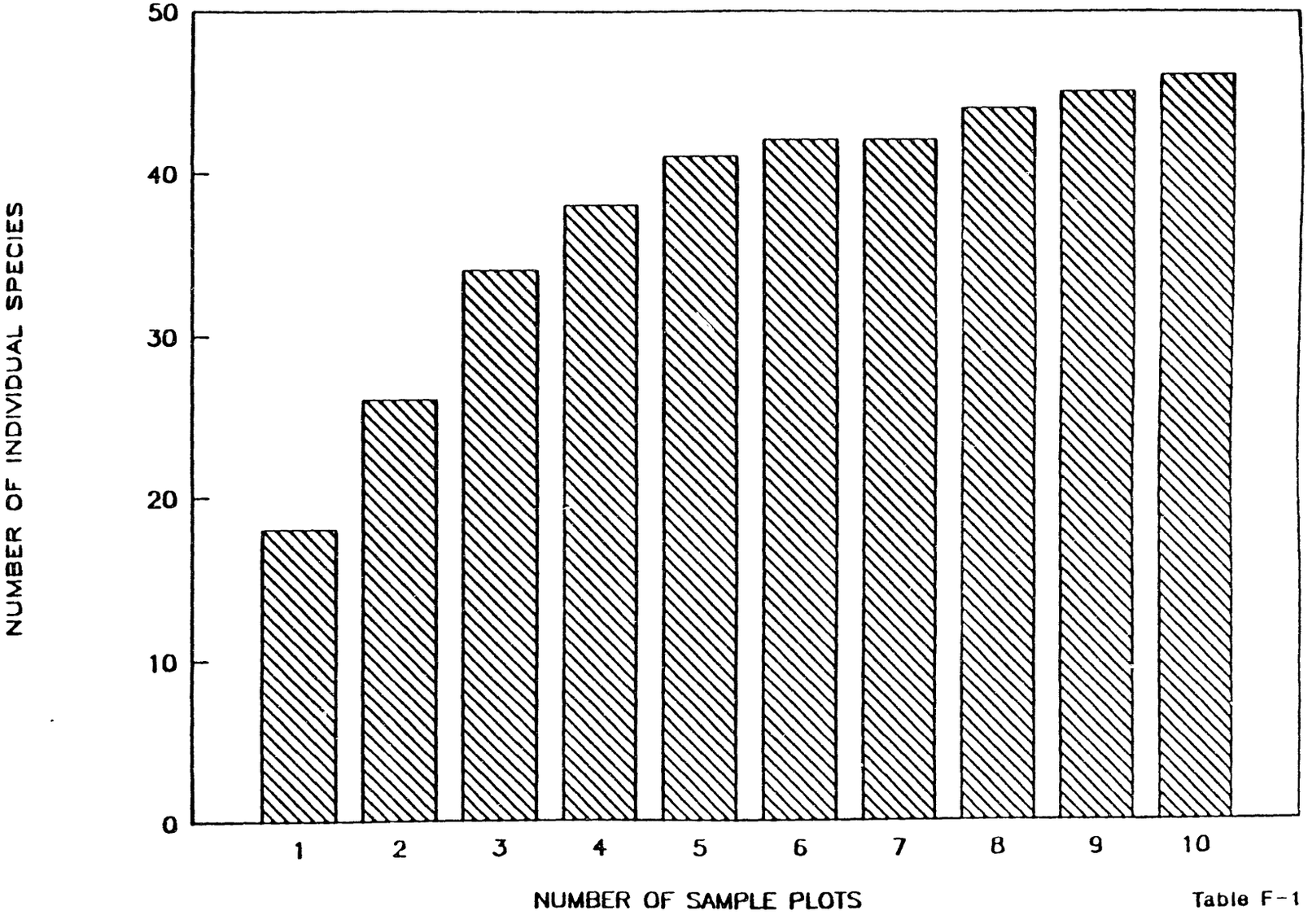


Table F-1

FA AREA

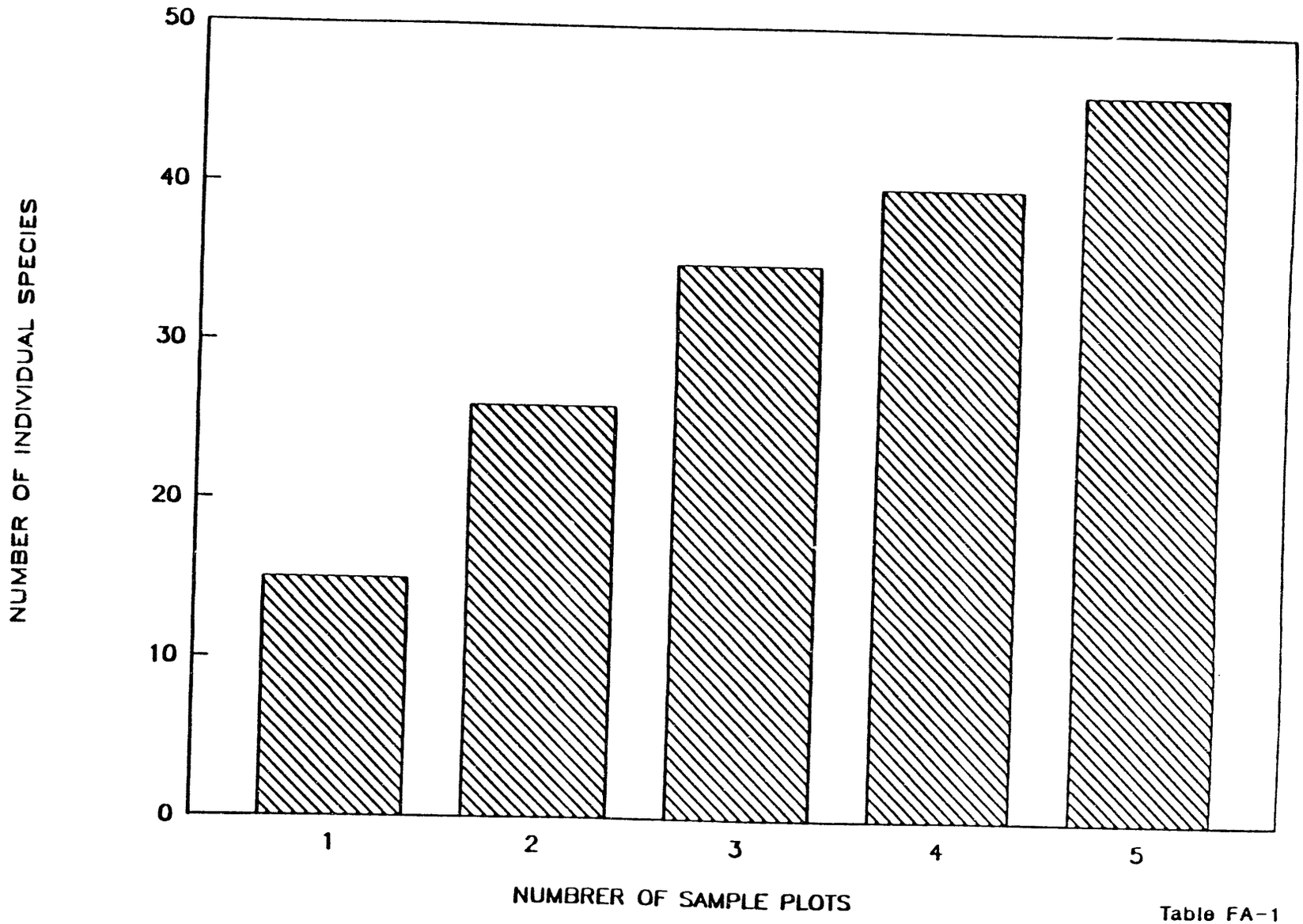


Table FA-1

Table FA-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

	Species Name: Ac ru Common Name:			Species Name: Pi ta Common Name:			Species Name: Li tu Common Name:			Species Name: Ma vi Common Name:		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	6	279.5	1	2	3301.8	3	10	1073.7	5	12	506.9
total			1677.2			6603.7			10737.1			6083.2
Density	1.20			0.40			2.00			2.40		
Dominance	335.43			1320.73			2147.43			1216.64		
Frequency	0.60			0.20			0.60			1.00		
Rel. Den.	6.19			2.06			10.31			12.37		
Rel. Dom.	1.88			7.41			12.05			6.83		
Rel. Freq	15.79			5.26			15.79			26.32		
Imp. Val.	23.86			14.74			38.15			45.52		

Species Richness= 3.019974 Diversity=0.539518

Table FA 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

Species Name: Ny sy Common Name:	Species Name: Il op Common Name:	Species Name: Li st Common Name:	7	
Plot I.D. # 5	Plot I.D. # 1	Plot I.D. # 1	19 1.986771	97 7475.025
Diameter (in.) 64	Diameter (in.) 2	Diameter (in.) 1		
Basal Area (cm) 976.9	Basal Area (cm) 118.8	Basal Area (cm) 1217.4		
62519.1	237.6	1217.4		89075.17
12.80	0.40	0.20		
12503.82	47.52	243.47		
1.00	0.20	0.20	3.8	
65.98	2.06	1.03	100	
70.19	0.27	1.37	100	
26.32	5.26	5.26	100	
162.48	7.59	7.66	300	

Table FA 3-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Il op			Species Name: Ac ru			Species Name: Li st			Species Name: Pe bo		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	5	9	23.7	4	7	4.9	6	13	8.2	1	1	6.1
total			213.5			34.5			106.2			6.1
Density	0.90			0.70			1.30			0.10		
Dominance	21.35			3.45			10.62			0.61		
Frequency	0.50			0.40			0.60			0.10		
Rel. Den.	17.31			13.46			25.00			1.92		
Rel. Dom.	43.70			7.05			21.74			1.26		
Rel. Freq	21.74			17.39			26.09			4.35		
Imp. Val.	82.75			37.91			72.83			7.53		

Species Richness= 4.079246 Diversity=0.830316

Table FA 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Vi ro			Species Name: Ne vi			Species Name: Vi ru			Species Name: Al se		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	6.1	4	10	11.8	1	10	0.3	1	1	1.3
		6.1			117.9			3.0			1.3
0.10			1.00			1.00			0.10		
0.61			11.79			0.30			0.13		
0.10			0.40			0.10			0.10		
1.92			19.23			19.23			1.92		
1.26			24.13			0.61			0.26		
4.35			17.39			4.35			4.35		
7.53			60.75			24.19			6.53		

Table FA 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

23 1.716003 52 62.42558
488.5166

2.3

100

100

100

300

Table FA 4-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Vi ru			Species Name: Li st			Species Name: Il op			Species Name: Vi de		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	43	1.0	5	19	2.5	6	9	2.0	3	6	1.8
total			43.1			47.8			17.8			10.9
Density	4.30			1.90			0.90			0.60		
Dominance	4.31			4.78			1.78			1.09		
Frequency	0.60			0.50			0.60			0.30		
Rel. Den.	29.25			12.93			6.12			4.08		
Rel. Dom.	13.95			15.46			5.75			3.53		
Rel. Freq	13.04			10.87			13.04			6.52		
Imp. Val.	56.25			39.25			24.92			14.13		

Species Richness= 9.227997 Diversity=0.876153

Table FA 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Mo ru			Species Name: Os ci			Species Name: Il nu			Species Name: My he		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.1	1	12	0.2	1	2	1.6	3	7	1.7
		0.1			2.5			3.3			12.0
0.20			1.20			0.20			0.70		
0.01			0.25			0.33			1.20		
0.10			0.10			0.10			0.30		
1.36			8.16			1.36			4.76		
0.03			0.82			1.06			3.87		
2.17			2.17			2.17			6.52		
3.57			11.16			4.60			15.15		

Table FA 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Mo ru			Species Name: Os ci			Species Name: Il nu			Species Name: My he		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.1	1	12	0.2	1	2	1.6	3	7	1.7
		0.1			2.5			3.3			12.0
0.20			1.20			0.20			0.70		
0.01			0.25			0.33			1.20		
0.10			0.10			0.10			0.30		
1.36			8.16			1.36			4.76		
0.03			0.82			1.06			3.87		
2.17			2.17			2.17			6.52		
3.57			11.16			4.60			15.15		

Table FA 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Al se			Species Name: Ac ru			Species Name: Li tu			Species Name: Vi ci		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	3	3.8	1	2	20.3	1	3	0.2	1	3	0.2
		11.4			40.6			0.7			0.5
0.30			0.20			0.30			0.30		
1.14			4.06			0.07			0.05		
0.20			0.10			0.10			0.10		
2.04			1.36			2.04			2.04		
3.69			13.14			0.23			0.15		
4.35			2.17			2.17			2.17		
10.07			16.67			4.45			4.36		

Table FA 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: It vi			Species Name: Unknown 1			Species Name: Vi ro			Species Name: Pi ta		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	3	0.2	2	6	0.3	1	4	2.8	1	1	0.2
		0.7			1.8			11.0			0.2
	0.30			0.60			0.40			0.10	
	0.07			0.18			1.10			0.02	
	0.10			0.20			0.10			0.10	
	2.04			4.08			2.72			0.68	
	0.23			0.59			3.57			0.07	
	2.17			4.35			2.17			2.17	
	4.44			9.02			8.47			2.92	

Table FA 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FA 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Sm la						
Plot I.D. #	Diameter (in.)	Basal Area (cm)				
1	1	0.5	46	2.167317	147	51.40968
		0.5				309.2952
0.10						
0.05						
0.10				4.6		
0.68				100		
0.15				100		
2.17				100		
3.00				300		

Table FA 5-6

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: FA 1-10 Micro-plot No.: 10

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	1	0.89	0.1000	1.16	1.54	2.70
Ar gi	3	12.15	0.3000	15.78	4.62	20.39
Ar se	1	7.51	0.1000	9.75	1.54	11.29
As pl	1	0.30	0.1000	0.39	1.54	1.93
At as	1	0.89	0.1000	1.16	1.54	2.70
Ca sp	2	1.19	0.2000	1.54	3.08	4.62
De ba	5	2.66	0.5000	3.46	7.69	11.15
Di sp	1	0.30	0.1000	0.39	1.54	1.93
Eg de	1	0.30	0.1000	0.39	1.54	1.93
El sp	1	0.89	0.1000	1.16	1.54	2.70
Fe sp	1	7.51	0.1000	9.75	1.54	11.29
Il op	2	1.19	0.2000	1.54	3.08	4.62
Im ca	1	0.30	0.1000	0.39	1.54	1.93
It vi	1	0.89	0.1000	1.16	1.54	2.70
Li st	1	0.30	0.1000	0.39	1.54	1.93
Li tu	2	0.60	0.2000	0.78	3.08	3.85
Mi ce	2	0.60	0.2000	0.78	3.08	3.85
Os ci	1	0.89	0.1000	1.16	1.54	2.70
Pa qu	4	2.76	0.4000	3.58	6.15	9.73
Pi ta	1	0.30	0.1000	0.39	1.54	1.93
Qu ni	1	0.30	0.1000	0.39	1.54	1.93
Ru sp	4	3.94	0.4000	5.11	6.15	11.27
Sc cy	2	2.17	0.2000	2.82	3.08	5.89
Sm gl	2	0.60	0.2000	0.78	3.08	3.85
Sm ro	3	1.48	0.3000	1.93	4.62	6.54
To ra	3	4.62	0.3000	6.00	4.62	10.62
Unknown a	1	1.87	0.1000	2.43	1.54	3.97
Unknown Brassicaceae	1	0.89	0.1000	1.16	1.54	2.70
Va sp	1	0.30	0.1000	0.39	1.54	1.93
Vi ru	6	13.62	0.6000	17.69	9.23	26.92
Vi sp	1	0.30	0.1000	0.39	1.54	1.93
Wo ar	7	4.43	0.7000	5.75	10.77	16.52
	32	76.97	6.5	100	100	200

Richness =17.0995485 Diversity= 0.91

Table FA 6-1

FB AREA

FB Area is located west of (downstream), and adjacent to, FA Area (Figure 6). There were five plots sampled with 46 plant species surveyed within this area. Although the species area curve shows sufficient sampling with the completion of the second plot, five plots were conducted at the request of SRL staff (Table FB-1).

FB Area had an average canopy height of 65 feet (Table FB-2).

Overstory Stratum (Table FB-3)

The FB Area was sampled in the same manner as described previously for the FA Area. Within the FB sampling area the overstory vegetation was analyzed in the field from a total of five subplot locations. In the overstory tree stratum a total of 108 individual trees were measured from nine distinct species. The overstory tree species possessing the highest I.V. for this sampling area was black gum (Nyssa sylvatica) (I.V. 174.65). The other dominant tree species, in descending order of I.V., included red maple (Acer rubrum) (I.V. 30.95), yellow poplar (Liriodendron tulipifera) (I.V. 25.45), and sweet bay (Magnolia virginiana) (I.V. 25.23). The species with the highest relative density based on field measurements was black gum (relative density 69.44 percent). Black gum also was the species with the highest relative dominance (78.74 percent). Black gum had the highest relative frequency with 22.73 percent. All other species had relative frequencies lower than 20 percent.

The overstory species with the highest average basal area was loblolly pine (Pinus taeda) with an average value of 1,986.5 sq. cm. The loblolly pine was closely followed in average basal area by the southern shagbark hickory (Carya carolinae-septentrionalis) with a value of 1,829.2 sq. cm. By far, the species with the largest total basal area was black gum with 67,898 sq. cm. Based on the presence of nine species and a total tally of 108 overstory trees from the sampling area, the FB overstory is considered to be moderately diverse in composition, with a diversity of 0.50.

Understory Stratum (Table FB-4)

The FB Area understory stratum in the sampling area consisted of a total of 57 individuals from the 10 subplots measured. A total of 10 species were recorded from the understory stratum in this sampling location. The understory species possessing the highest I.V. was American holly (Ilex opaca) (I.V. 75.08). Following the American holly in descending order of I.V. was sweet gum (Liquidambar styraciflua) (I.V. 70.97), red maple (I.V. 35.62), sweet bay (I.V. 34.6) and red bay (Persea borbonia) (I.V. 28.18). The understory species with the highest relative density within the FB sampling area was sweet gum with a value of 35.09 percent. American holly had the highest relative dominance with 33.54 percent of the stand comprised by this species. In addition, sweet gum (relative dominance 23.89) and black gum (relative dominance 14.57) were also major components of the understory stratum based on their relative dominance values.

American holly was the most numerous species encountered within the FB sampling area and resulted in the highest relative frequency with 24.0 percent of the stand comprising this species. The diversity of the understory stratum in the FB sampling area (diversity of 0.81 percent) was higher than that noted for the overstory stratum.

Shrub Layer Stratum (Table FB-5)

The shrub layer stratum for FB Area had 24 species representing the 79 individuals that were measured, for a diversity of 0.66. There were 10 subplots analyzed for this area. The dominant species was sweet bay with a relative dominance of 35.71 percent of the sampled area. American holly followed with a relative dominance of 18.14 percent, then came white oak (Quercus alba) with 13.7 percent.

The most frequently occurring species in the shrub layer stratum were sweet bay, with a relative frequency of 25.0 percent (nine occurrences), American holly

(12.5 percent), red maple (12.5 percent), and three others with a relative frequency of 8.3 percent.

The highest I.V. was calculated for sweet bay, with a value of 72.1. Other species, in descending order of I.V.'s, were rusty blackhaw (I.V. 69.38), American holly (I.V. 36.97), and red maple (I.V. 29.10).

Ground Cover Stratum (Table FB-6)

Within the FB sampling area a total of 10 subplots were measured. The sampling points included measurements of 28 distinct species. The species with the highest individual relative dominance was giant bamboo (Arundinaria gigantea) with a 24.56 percent dominance. The giant bamboo was followed in dominance by Virginia willow (Itea virginica) with a dominance of 13.43 percent. Netted chain-fern (Woodwardia areolata) was the third most dominant ground stratum species with a dominance of 8.36 percent. The most frequently occurring species was the netted chain-fern with a relative frequency of 13.73 percent. Climbing hydrangea (Decumaria barbara), was second in relative frequency at 7.84 percent.

The species with the highest I.V. for the FB sampling area ground cover stratum included, in descending order of I.V., giant bamboo (I.V. 30.44), netted chain-fern (I.V. 22.09), Virginia willow (I.V. 19.31), climbing hydrangea (I.V. 14.70), and cinnamon fern (Osmunda cinnamomea) (I.V. 11.93).

The FB sampling area is a highly diverse flora with a diversity of 0.89 percent.

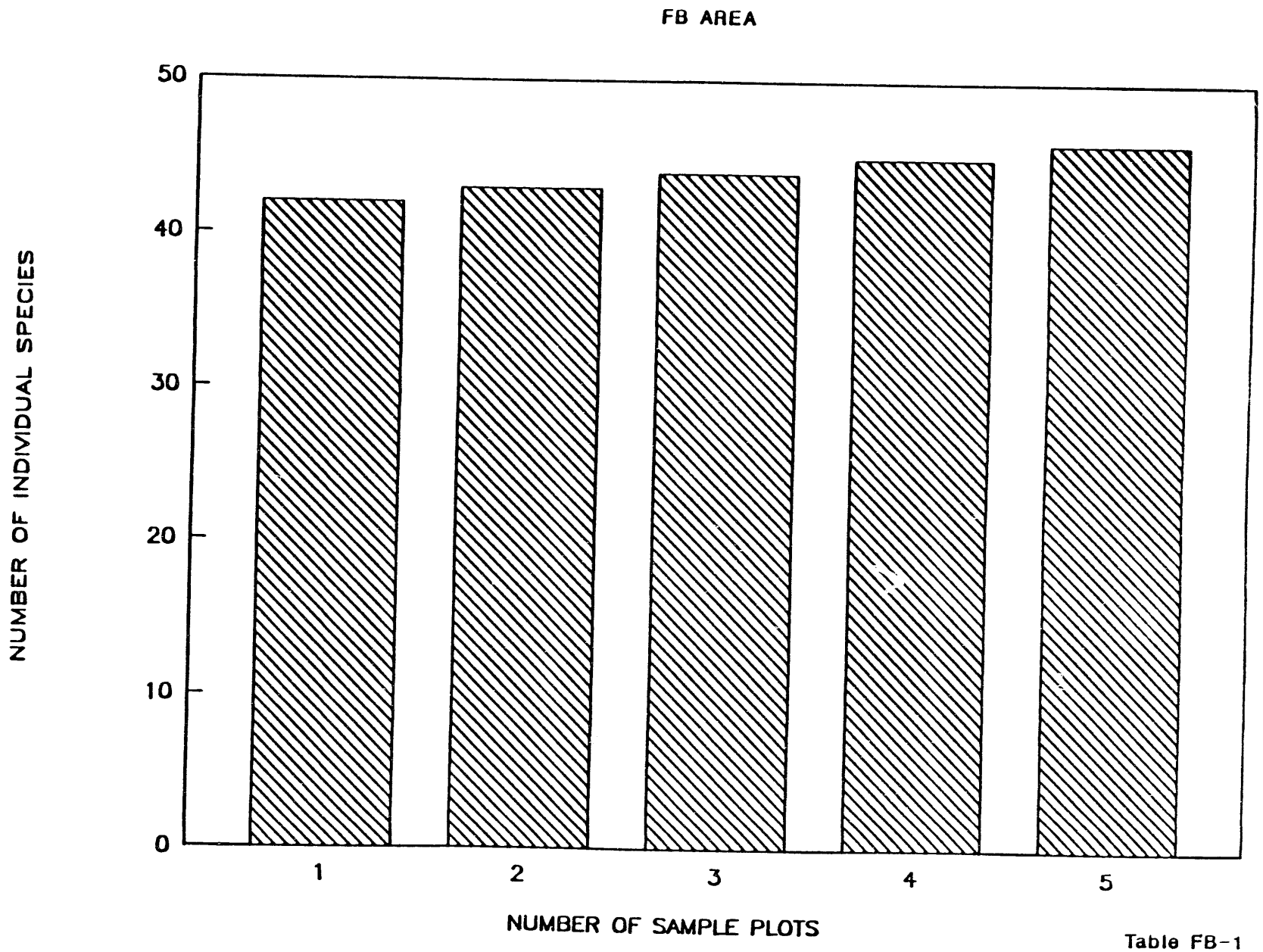

FB AREA
NUMBER OF INDIVIDUAL SPECIES
50
40
30
20
10
0
1
2
3
4
5
NUMBER OF SAMPLE PLOTS

Table FB-1

Table FB-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

	Species Name: Ac ru			Species Name: Il op			Species Name: Li tu			Species Name: Ma vi		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	4	10	367.4	1	2	63.3	3	5	1503.0	3	10	244.2
total			3673.8			126.7			7515.2			2442.4
Density	2.00			0.40			1.00			2.00		
Dominance	734.76			25.34			1503.04			488.48		
Frequency	0.80			0.20			0.60			0.60		
Rel. Den.	9.26			1.85			4.63			9.26		
Rel. Dom.	3.51			0.12			7.19			2.34		
Rel. Freq	18.18			4.55			13.64			13.64		
Imp. Val.	30.95			6.52			25.45			25.23		

Species Richness= 3.934251 Diversity=0.501730

Table FB 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

Species Name: Ny sy			Species Name: Qu al			Species Name: Li st			Species Name: Ca ca		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
5	75	905.3	1	1	248.3	3	3	169.5	1	1	1829.2
		86255.9			248.3			508.4			1829.2
15.00			0.20			0.60			0.20		
17251.18			49.66			101.69			365.84		
1.00			0.20			0.60			0.20		
69.44			0.93			2.78			0.93		
82.47			0.24			0.49			1.75		
22.73			4.55			13.64			4.55		
174.65			5.71			16.90			7.22		

Table FB 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

Species Name: Pi ta						
Plot I.D. #	Diameter (in.)	Basal Area (cm)				
1	1	1986.5	22	2.033423	108	7316.774
		1986.5				104586.3
0.20						
397.30						
0.20			4.4			
0.93			100			
1.90			100			
4.55			100			
7.37			300			

Table FB 3-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Il op			Species Name: Ac ru			Species Name: Li st			Species Name: Pe bo		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	10	10.5	4	4	9.9	3	20	3.7	3	4	7.2
total			104.9			39.4			74.7			28.7
Density	1.00			0.40			2.00			0.40		
Dominance	10.49			3.94			7.47			2.87		
Frequency	0.60			0.40			0.30			0.30		
Rel. Den.	17.54			7.02			35.09			7.02		
Rel. Dom.	33.54			12.60			23.89			9.17		
Rel. Freq	24.00			16.00			12.00			12.00		
Imp. Val.	75.08			35.62			70.97			28.18		

Species Richness= 5.125650 Diversity=0.814536

Table FB 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Ma vi			Species Name: Vi ru			Species Name: It vi			Species Name: UNKN		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	8	1.8	1	1	1.8	1	7	0.3	1	1	0.2
		14.4			1.8			2.3			0.2
0.80			0.10			0.70			0.10		
1.44			0.18			0.23			0.02		
0.40			0.10			0.10			0.10		
14.04			1.75			12.28			1.75		
4.60			0.58			0.73			0.06		
16.00			4.00			4.00			4.00		
34.63			6.34			17.01			5.82		

Table FB 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Hy sy			Species Name: Sm la				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	1	45.6	1	1	0.8	25 1.755874	57 81.82203
		45.6			0.8		312.8918
0.10			0.10				
4.56			0.08				
0.10			0.10			2.5	
1.75			1.75			100	
14.57			0.26			100	
4.00			4.00			100	
20.33			6.01			300	

Table FB 4-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Ac ru			Species Name: Il op			Species Name: Ma vi			Species Name: Qu al		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	3	22.8	3	5	19.4	6	9	21.2	1	1	73.2
total			68.4			96.9			190.7			73.2
Density	0.30			0.50			0.90			0.10		
Dominance	6.84			9.69			19.07			7.32		
Frequency	0.30			0.30			0.60			0.10		
Rel. Den.	3.80			6.33			11.39			1.27		
Rel. Dom.	12.80			18.14			35.71			13.70		
Rel. Freq	12.50			12.50			25.00			4.17		
Imp. Val.	29.10			36.97			72.10			19.13		

Species Richness= 5.796713 Diversity=0.666991

Table FB 5-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Hy ay			Species Name: Sm la				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	1	45.6	1	1	0.8	25 1.755874	57 81.82203
		45.6			0.8		312.8918
0.10			0.10				
4.56			0.08				
0.10			0.10			2.5	
1.75			1.75			100	
14.57			0.26			100	
4.00			4.00			100	
20.33			6.01			300	

Table FB 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: UNK 1			Species Name: Ul al			Species Name: Li st			Species Name: Pe bo		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	5.7	1	1	1.3	1	1	8.6	2	2	25.9
		11.4			1.3			8.6			51.7
0.20			0.10			0.10			0.20		
1.14			0.13			0.86			5.17		
0.10			0.10			0.10			0.20		
2.53			1.27			1.27			2.53		
2.13			0.24			1.60			9.69		
4.17			4.17			4.17			8.33		
8.83			5.67			7.04			20.55		

Table FB 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Qu bi			Species Name: Vi ru			Species Name: Vi de			Species Name: It vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.8	2	44	0.6	1	2	0.6	2	8	0.2
		0.8			28.6			1.3			1.3
0.10			4.40			0.20			0.80		
0.08			2.86			0.13			0.13		
0.10			0.20			0.10			0.20		
1.27			55.70			2.53			10.13		
0.15			5.35			0.24			0.25		
4.17			8.33			4.17			8.33		
5.58			69.38			6.94			18.71		

Table FB 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FB 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

24	1.897627	79	180.1779
			534.0696
	2.4		
	100		
	100		
	100		
	300		

Table FB 5-5

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: FB 1-10 Micro-plot No.: 10.00

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	3.00	1.19	0.3000	1.55	5.88	7.44
Ar gi	3.00	18.76	0.3000	24.56	5.88	30.44
Car sp	2.00	0.60	0.2000	0.78	3.92	4.70
Le or	1.00	0.30	0.1000	0.40	1.96	2.36
De ba	4.00	5.24	0.4000	6.85	7.84	14.70
Ge se	1.00	0.89	0.1000	1.17	1.96	3.13
Gl sp	1.00	1.87	0.1000	2.45	1.96	4.41
It vi	3.00	10.26	0.3000	13.43	5.88	19.31
Li sp	1.00	1.87	0.1000	2.45	1.96	4.41
Lo ja	1.00	1.87	0.1000	2.45	1.96	4.41
Lu sp	1.00	0.30	0.1000	0.40	1.96	2.36
Ma vi	1.00	0.30	0.1000	0.40	1.96	2.36
Mi re	2.00	1.19	0.2000	1.55	3.92	5.48
Os ci	3.00	4.62	0.3000	6.05	5.88	11.93
Pe bo	1.00	0.30	0.1000	0.40	1.96	2.36
Pa qu	2.00	0.30	0.2000	0.40	3.92	4.32
Qu al	1.00	0.89	0.1000	1.17	1.96	3.13
Qu ly	1.00	0.01	0.1000	0.01	1.96	1.97
Sm gl	3.00	1.48	0.3000	1.94	5.88	7.82
Sm la	1.00	0.30	0.1000	0.40	1.96	2.36
To ra	2.00	1.19	0.2000	1.55	3.92	5.48
UNKN	1.00	3.76	0.1000	4.93	1.96	6.89
UNKN 1	1.00	7.51	0.1000	9.83	1.96	11.79
UNKN 3	1.00	0.89	0.1000	1.17	1.96	3.13
Vi nu	1.00	3.76	0.1000	4.93	1.96	6.89
Vi ro	1.00	0.30	0.1000	0.40	1.96	2.36
Vio sp	1.00	0.01	0.1000	0.01	1.96	1.97
Wo ar	7.00	6.39	0.7000	8.36	13.73	22.09
	28.00	76.39	5.10	100.00	100.00	200.00

Richness = 27.41 Diversity = 0.89

Table FB 6-1

FC AREA

FC Area is located approximately 300 feet to the east of Road C-4. Three plots were sampled in this section of Four Mile Creek (Figure 6).

The species area curve, with a total of 40 plant species being documented within this area, indicates insufficient sampling of FC Area (Table FC-1). Although the curve shows more sampling was needed, there were spatial constraints as well as SRL staff restrictions for safety considerations which prevented sampling additional plots.

The FC Area had an average canopy height of 57 feet (Table FC-2).

Overstory Stratum (Table FC-3)

A total of nine different species representing 57 individuals, were measured in the three FC Area overstory plots. The diversity for this sampling area was 0.87, with black gum (Nyssa sylvatica) having the highest I.V. (93.6). Black gum also had the greatest frequency (relative frequency of 21.4) with three individuals occurring within the overstory stratum sampling plots. There were three species with two individuals each measured within FC Area: water oak (Quercus nigra), red maple (Acer rubrum), and sweet gum (Liquidambar styraciflua).

The species that possessed the greatest relative density within the sampling area was black gum with a relative density of 33.3 percent of the entire area sampled. Black gum had a relative dominance of 38.8 percent, followed by water oak (16.8), red maple (10.5), and sweet bay (Magnolia virginiana) (7.3).

Understory Stratum (Table FC-4)

The FC understory stratum was moderately diverse with a value of 0.79. Within the six subplots, there were a total of 32 individuals representing eight species. Red

maple had the greatest basal area (221.7 sq. cm.) with a relative dominance value of 46.88 percent. The highest relative density was red maple with 40.6 percent.

The I.V. for red maple was 114.78. Three other species, sweet gum (I.V. 39.64), bitternut hickory (Carya cordiformis) (I.V. 35.63), and American holly (Ilex opaca) (I.V. 32.9) had I.V.'s over 30 in the FC understory sampling stratum. Red maple had 13 individuals occurring in the area, constituting the greatest relative frequency for the stratum.

Shrub Layer Stratum (Table FC-5)

The shrub layer vegetation stratum for FC Area was sampled through six subplots. There were 28 different species documented and a total of 132 individual specimens were measured and recorded. The area was highly diverse with a diversity of 0.89. This shrub layer stratum was typical of all shrub layer units within the F Area sampling sites.

Possumhaw (Viburnum nudum) had the greatest I.V. (54.58), with red maple, tag alder (Alnus serrulata), and sweet gum following. Possumhaw had the highest relative density, with a value of 25.76 percent, and was the dominant (in terms of relative dominance) with a value of 21.68.

Water oak was also the most frequently occurring species within the shrub layer stratum for FC Area (relative frequency of 10.71).

Ground Cover Stratum (Table FC-6)

A total of six subplots were sampled within FC Area for ground cover vegetation. The ground cover stratum had 29 distinct species representing the 56 specimens measured (diversity of 0.89%). The most dominant of the ground cover recorded from this area was netted chain-fern (Woodwardia areolata) with a relative

dominance of 25.88 percent of the entire area sampled. The netted chain-fern was followed by giant bamboo (Arundinaria gigantea) (17.29 percent), ox-eye daisy (Chrysanthemum segetum) (7.05 percent), partridge berry (Mitchella repens) (4.71 percent), and four other species with a relative dominance of 3.54 percent.

The most frequently occurring species within the stand were red maple, giant bamboo, and netted chain-fern, with a relative frequency of 7.5 percent each. Netted chain-fern had the highest I.V. of the ground cover stratum with an I.V. of 33.38. Other species following netted chain-fern were giant bamboo (24.79), daisy (12.05), red maple (11.03), and partridge berry (9.71).

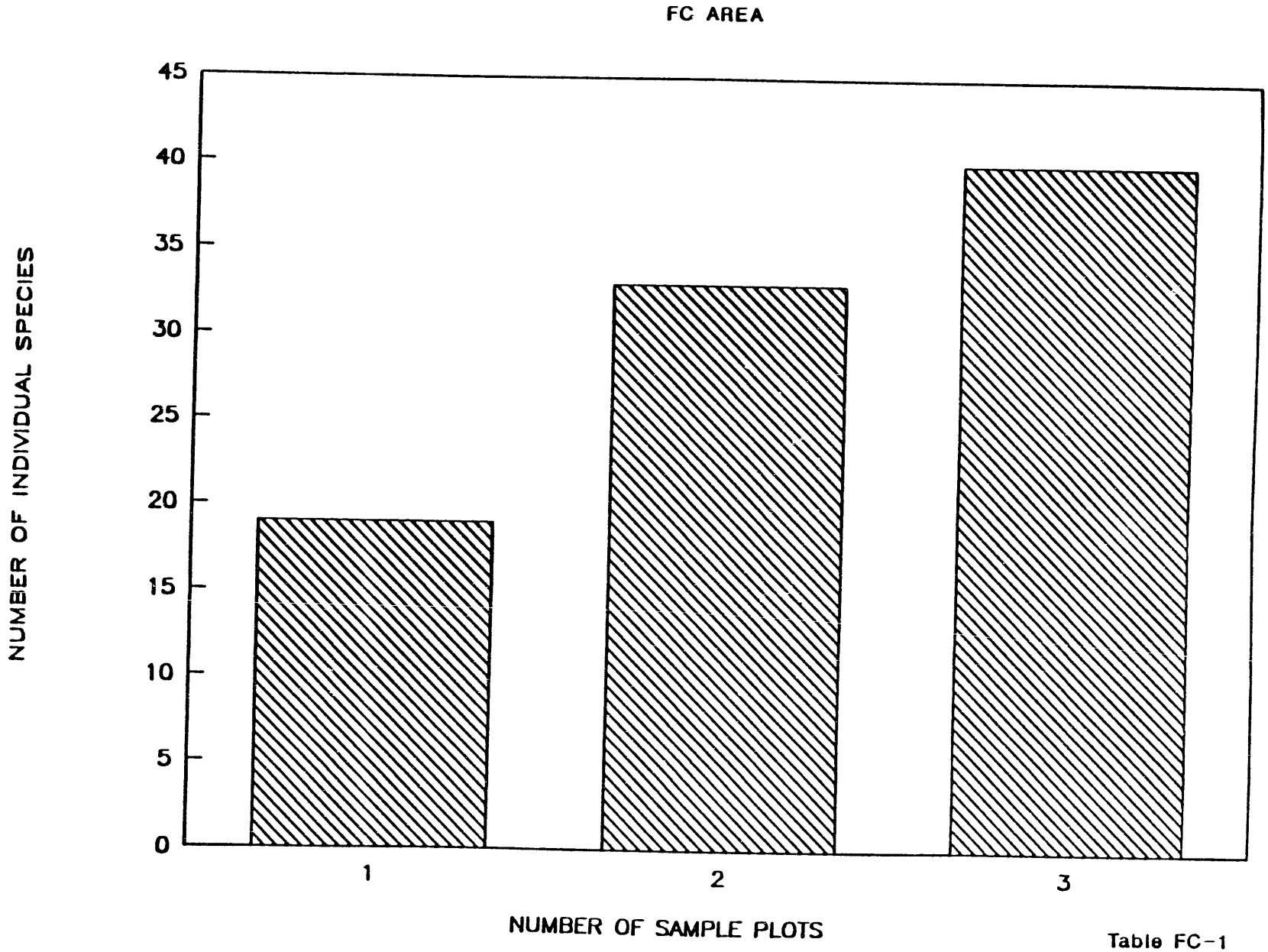

FC AREA
NUMBER OF INDIVIDUAL SPECIES
45
40
35
30
25
20
15
10
5
0
1
2
3
NUMBER OF SAMPLE PLOTS

Table FC-1

Table FC-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 3 Total Subplot Area = 1500.00

	Species Name: Ma Vi			Species Name: Ac Ru			Species Name: Ny Sy			Species Name: Li St		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	1	3	667.3	2	4	720.4	3	19	558.8	2	9	264.7
total			2002.0			2881.6			10616.8			2382.2
Density	1.00			1.33			6.33			3.00		
Dominance	667.32			960.53			3538.93			794.06		
Frequency	0.33			0.67			1.00			0.67		
Rel. Den.	5.26			7.02			33.33			15.79		
Rel. Dom.	7.33			10.55			38.87			8.72		
Rel. Freq	7.14			14.29			21.43			14.29		
Imp. Val.	19.74			31.85			93.63			38.80		

Species Richness= 4.556133 Diversity=0.823308

Table FC 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 3 Total Subplot Area = 1500.00

Species Name: Il Op			Species Name: Qu Ni			Species Name: Co Fl			Species Name: Qu Ly		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	89.4	2	6	766.5	1	4	96.1	1	1	681.8
		89.4			4598.7			384.5			681.8
0.33			2.00			1.33			0.33		
29.79			1532.91			128.16			227.28		
0.33			0.67			0.33			0.33		
1.75			10.53			7.02			1.75		
0.33			16.84			1.41			2.50		
7.14			14.29			7.14			7.14		
9.22			41.65			15.57			11.39		

Table FC 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 3 Total Subplot Area = 1500.00

Species Name: Ca ca					
Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	10	367.5	14	1.755874	57 4212.486
		3675.2			27312.14
3.33					
1225.07					
0.33				4.666666	
17.54				100	
13.46				100	
7.14				100	
38.14				300	

Table FC 3-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

	Species Name: Ac ru			Species Name: Il op			Species Name: Ny sy			Species Name: Li st		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	13	17.1 221.7	1	5	7.8 38.9	1	1	29.2 29.2	1	3	33.4 100.1
Density	2.17			0.83			0.17			0.50		
Dominance	36.95			6.48			4.86			16.69		
Frequency	0.50			0.17			0.17			0.17		
Rel. Den.	40.63			15.63			3.13			9.38		
Rel. Dom.	46.88			8.22			6.17			21.17		
Rel. Freq	27.27			9.09			9.09			9.09		
Imp. Val.	114.78			32.93			18.39			39.64		

Species Richness= 4.650699 Diversity=0.798387

Table FC 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Co fl			Species Name: Ca ca			Species Name: Al se			Species Name: Ma vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	3	2.3	2	3	12.8	1	1	6.1	1	3	10.5
		7.0			38.4			6.1			31.5
0.50			0.50			0.17			0.50		
1.17			6.40			1.02			5.24		
0.17			0.33			0.17			0.17		
9.38			9.38			3.13			9.38		
1.48			8.12			1.30			6.65		
9.09			18.18			9.09			9.09		
19.94			35.68			13.51			25.12		

Table FC 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

11	1.505149	32
	1.833333	
	100	
	100	
	100	
	300	

Table FC 4-3

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

	Species Name: Ma vi			Species Name: Qu ni			Species Name: Pe bo			Species Name: Qu la		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	2	9	0.8	3	5	0.3	2	4	0.2	2	4	0.3
total			7.3			1.5			0.8			1.1
Density	1.50			0.83			0.67			0.67		
Dominance	1.22			0.25			0.13			0.18		
Frequency	0.33			0.50			0.33			0.33		
Rel. Den.	6.82			3.79			3.03			3.03		
Rel. Dom.	8.72			1.82			0.91			1.27		
Rel. Freq	7.14			10.71			7.14			7.14		
Imp. Val.	22.68			16.32			11.08			11.44		

Species Richness= 8.016697 Diversity=0.892551

Table FC 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Il op			Species Name: Vi ru			Species Name: Sm la			Species Name: It vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.5 1.0	2	34	0.5 18.1	1	9	0.7 6.3	1	13	0.3 3.9
0.33			5.67			1.50			2.17		
0.17			3.02			1.06			0.65		
0.17			0.33			0.17			0.17		
1.52			25.76			6.82			9.85		
1.21			21.68			7.57			4.66		
3.57			7.14			3.57			3.57		
6.30			54.58			17.96			18.08		

Table FC 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Al se			Species Name: My ce			Species Name: Li st			Species Name: Vi ro		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	10	1.1	1	4	0.3	2	13	0.7	1	1	0.8
		10.8			1.3			8.5			0.8
1.67			0.67			2.17			0.17		
1.81			0.22			1.42			0.14		
0.33			0.17			0.33			0.17		
7.58			3.03			9.85			0.76		
12.96			1.57			10.17			0.97		
7.14			3.57			7.14			3.57		
27.68			8.18			27.17			5.30		

Table FC 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^-2 Subplot Size = 25 m^-2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Co fl			Species Name: Ul al			Species Name: Ca ca			Species Name: Mo ru		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	5	0.6	1	1	0.5	2	5	0.8	1	1	0.5
		2.9			0.5			4.2			0.5
	0.83			0.17			0.83			0.17	
	0.48			0.08			0.70			0.08	
	0.33			0.17			0.33			0.17	
	3.79			0.76			3.79			0.76	
	3.45			0.55			5.04			0.55	
	7.14			3.57			7.14			3.57	
	14.38			4.87			15.97			4.87	

Table FC 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: FC 1-3

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 6 Total Subplot Area = 150.00

Species Name: Vi ru			Species Name: Ac ru				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	10	0.7	1	2	3.7	28 2.120573	132 13.18019
		6.8			7.3		83.67007
1.67			0.33				
1.13			1.22				
0.17			0.17			4.666666	
7.58			1.52			100	
8.12			8.78			100	
3.57			3.57			100	
19.26			13.87			300	

Table FC 5-5

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: FC Micro-plot No.: 6

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	3	1.48	0.5000	3.53	7.50	11.03
Al se	1	1.48	0.1667	3.54	2.50	6.04
Ar gi	3	7.25	0.5000	17.29	7.50	24.79
At As	1	0.50	0.1667	1.19	2.50	3.69
Bo cy	1	0.50	0.1667	1.19	2.50	3.69
Ce oc	1	0.50	0.1667	1.19	2.50	3.69
Chr Se	2	2.96	0.3333	7.05	5.00	12.05
Cy sp	1	0.50	0.1667	1.19	2.50	3.69
De ba	1	0.50	0.1667	1.19	2.50	3.69
El To	1	0.50	0.1667	1.19	2.50	3.69
Ga ti	1	1.48	0.1667	3.54	2.50	6.04
Im ca	1	0.50	0.1667	1.19	2.50	3.69
It vi	1	1.48	0.1667	3.54	2.50	6.04
Ma Vi	1	0.50	0.1667	1.19	2.50	3.69
Mi Re	2	1.97	0.3333	4.71	5.00	9.71
Pi Ta	1	0.50	0.1667	1.19	2.50	3.69
Qu ni	2	0.99	0.3333	2.36	5.00	7.36
Rh Sp	1	0.50	0.1667	1.19	2.50	3.69
Ru sp	1	1.48	0.1667	3.54	2.50	6.04
Sa Ce	1	0.50	0.1667	1.19	2.50	3.69
Sa la	1	0.50	0.1667	1.19	2.50	3.69
Sm gl	1	0.50	0.1667	1.19	2.50	3.69
Sm La	2	0.99	0.3333	2.36	5.00	7.36
Sm ro	1	0.50	0.1667	1.19	2.50	3.69
Sm Sp	1	0.50	0.1667	1.19	2.50	3.69
To ra	2	0.99	0.3333	2.36	5.00	7.36
Tra sp	1	0.50	0.1667	1.19	2.50	3.69
Unknown	1	0.50	0.1667	1.19	2.50	3.69
Wo ar	3	10.85	0.5000	25.88	7.50	33.38
	29	41.91	6.67	100	100	200

Richness= 17.48 Diversity= 0.89

Table FC 6-1

DB AREA

DB Area begins north of the junction of Four Mile Creek and Road 3, extending to approximately 500 feet above Road A-6 (Figure 6). The lower six plots of this study area are located in Barnwell County, while the remaining plots are in Aiken County. This section of Four Mile Creek is situated within the Brandywine Terrace subregion of the Pleistocene Coastal Terraces. There is little elevation change in the DB Area.

Eight sampling plots were established and sampled within DB Area, with a total of 64 species being documented (Figure 6). The species area curve (Table DB-1) is incomplete, which may possibly be attributed to a change in the community type being sampled.

The average canopy height of DB Area was 66 feet (Table DB-2).

Overstory Stratum (Table DB-3)

Eight subplots were sampled in DB Area for overstory vegetation. A total of 93 individual trees, comprised of nine different species, were measured within this sampling area. The species with the highest I.V. was yellow poplar (Liriodendron tulipifera) (I.V. 84.79). The following species, in descending order, were determined to have a high I.V.: black gum (Nyssa sylvatica) (I.V. 66.67), red maple (Acer rubrum) (I.V. 41.05), sweet bay (Magnolia virginica) (I.V. 30.51), and black willow (Salix nigra) (I.V. 28.72).

The species with the highest relative density within the sampling area was yellow poplar, with a relative density of 26.8 percent. Yellow poplar, along with black gum, had the greatest relative frequency of overstory trees with a frequency of 20.0 percent. There were a total of four individuals each of yellow poplar and black gum trees occurring within the sampling area.

The composition of the DB Area overstory vegetation is highly diverse with an index of 0.83 for the species measured within the eight subplots.

Understory Stratum (Table DB-4)

A total of 16 subplots were sampled for understory vegetation in DB Area. The species with the highest I.V.'s, in descending order, included tag alder (Alnus serrulata) (I.V. 101.65), red maple (I.V. 60.1), sweet bay (I.V. 25.29), and black gum (I.V. 20.47). The highest relative frequency for the understory vegetation was red maple (22.58 percent), which had a total of 19 individuals being measured within the study area.

The DB Area understory represents an extremely diverse stratum (diversity of 0.72). There were 153 individuals measured representing 12 different species within the 16 subplots. In terms of relative density, tag alder was the highest with a density of 49.02 followed by red maple with a density of 12.42.

Relative dominance was the greatest for tag alder due to its large total basal area coverage (33.28 percent).

Shrub Layer Stratum (Table DB-5)

The shrub layer stratum for DB Area was highly diverse in its composition. This stratum included 20 individual species with a total occurrence of 365 specimens, yielding a diversity value of 0.85. The I.V. for the dominants, in descending order, are tag alder (70.77), possumhaw (Viburnum nudum) (34.18), and Virginia willow (Itea virginica) (30.22). Itea has the highest relative frequency with a value of 16.13 and was closely followed by red maple and tag alder, both having values of 12.9. Tag alder accounted for 28.2 percent of the relative density for the sampling area as a whole.

Ground Cover Stratum (Table DB-6)

The DB sampling area included a total of 28 individual ground cover stratum plots. From those 28 plots a total of 54 distinct species were recorded. Three of the ground cover species rated high for relative dominance. The species included spotted touch-me-not (Impatiens capensis) (relative dominance 27.58 percent), marsh dewflower (Murdania keisak) (relative dominance 10.24 percent), and tear-thumb (Polygonum sagittatum) (relative dominance 11.82 percent). Three species had high relative occurrence across the sampling plots: spotted touch-me-not (relative frequency 12.0 percent), Murdania (relative frequency 6.0 percent) and tear-thumb (Polygonum sagittatum) (relative frequency 5.33 percent).

A total of six species possessed notable I.V.'s. In descending order of I.V., the species included spotted touch-me-not (I.V. 39.58), tear-thumb (Polygonum sagittatum) (I.V. 17.15), Murdania (I.V. 16.24), netted chain-fern (I.V. 10.32), cutgrass (Leersia sp.) (I.V. 8.37), false nettle (Boehermia cylindrica) (I.V. 7.01). The ground cover stratum within the DB sampling area was highly diverse when compared to the other ground cover measurements from other areas recorded as part of this program (diversity of 0.89).

DB AREA

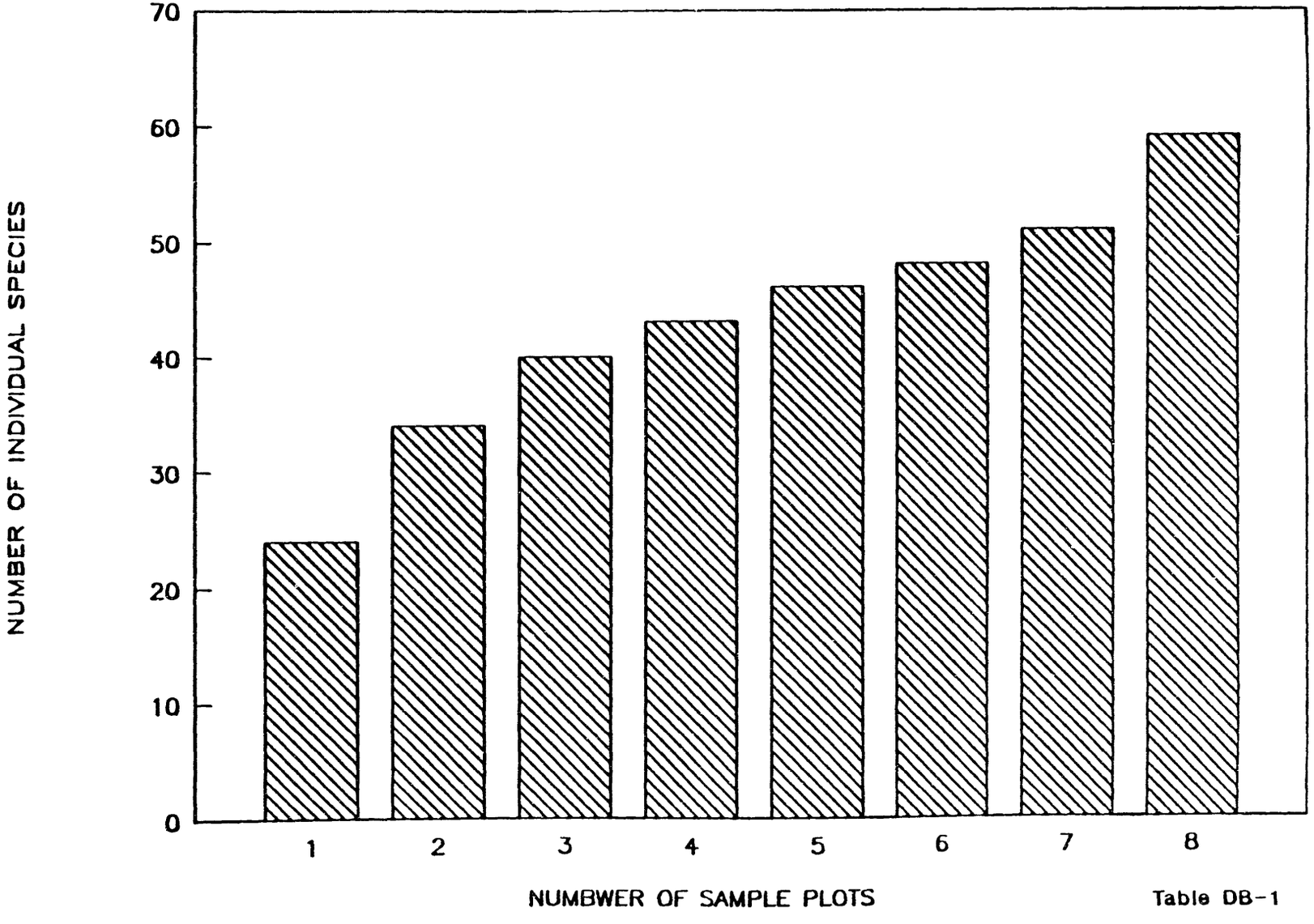


Table DB-1

Table DB-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

RELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Li tu				Species Name: Ac ru				Species Name: Ny sy				Species Name: My ce			
Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)
count/avg	4	25	688.9		3	14	357.0		4	20	571.5		1	1	81.1
total			17221.5				4998.2				11431.0				81.1
Density	3.13				1.75				2.50				0.13		
Dominance	2152.68				624.77				1428.87				10.13		
Frequency	0.50				0.38				0.50				0.13		
Rel. Den.	26.88				15.05				21.51				1.08		
Rel. Dom.	37.90				11.00				25.16				0.18		
Rel. Freq	20.00				15.00				20.00				5.00		
Imp. Val.	84.79				41.05				66.67				6.25		

Species Richness= 4.064043 Diversity=0.836839

Table DB 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Ma vi			Species Name: Be ni			Species Name: Il op			Species Name: Sa ni		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	7	518.0	1	4	217.4	1	7	161.1	2	12	220.3
		3626.2			869.7			1127.4			2643.1
0.88			0.50			0.88			1.50		
453.28			108.71			140.93			330.39		
0.38			0.13			0.13			0.25		
7.53			4.30			7.53			12.90		
7.98			1.91			2.48			5.82		
15.00			5.00			5.00			10.00		
30.51			11.22			15.01			28.72		

Table DB 3-2

VEGETATION ANALYSIS

OVERSTORY DATA

WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name:						
Li st				9		
Plot I.D. #	Diameter (in.)	Basal Area (cm)				
1	3	1145.2		20 1.968482	93 3960.412	
		3435.5			45433.52	
0.38						
429.43						
0.13				2.5		
3.23				100		
7.56				100		
5.00				100		
15.79				300		

Table DB 3-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Al se			Species Name: Il op			Species Name: Li tu			Species Name: Ac ru		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	75	9.4	1	11	14.6	2	4	24.1	7	19	28.1
total			706.8			160.5			96.3			533.4
Density	4.69			0.69			0.25			1.19		
Dominance	44.18			10.03			6.02			33.34		
Frequency	0.38			0.06			0.13			0.44		
Rel. Den.	49.02			7.19			2.61			12.42		
Rel. Dom.	33.28			7.56			4.53			25.11		
Rel. Freq	19.35			3.23			6.45			22.58		
Imp. Val.	101.65			17.97			13.60			60.11		

Species Richness= 5.035035 Diversity=0.723684

Table DB 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ma vi			Species Name: Vi ru			Species Name: Li st			Species Name: St am		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	5	38.7	1	1	6.1	2	4	5.0	2	18	6.2
		193.7			6.1			20.1			117.9
0.31			0.06			0.25			1.13		
12.11			0.38			1.25			7.37		
0.25			0.06			0.13			0.13		
3.27			0.65			2.61			11.76		
9.12			0.29			0.94			5.55		
12.90			3.23			6.45			6.45		
25.29			4.17			10.01			23.77		

Table DB 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ara sp			Species Name: Co st			Species Name: Ny sy			Species Name: Sa ni		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)
1	1	5.1	1	6	8.9	3	7	18.8	1	2	49.3
		5.1			53.5			131.9			98.6
0.06			0.38			0.44			0.13		
0.32			3.34			8.25			6.16		
0.06			0.06			0.19			0.06		
0.65			3.92			4.58			1.31		
0.24			2.52			6.21			4.64		
3.23			3.23			9.68			3.23		
4.12			9.67			20.47			9.17		

Table DB 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

31	2.184691	153	214.3641
			2123.836

1.9375

100

100

100

300

Table DB 4-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Al se Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: It vi Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ac ru Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Vi nu Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	8	103	1.5 151.0	9	42	0.3 13.2	8	16	1.7 26.8	7	62	0.5 30.1
Density	6.44			2.63			1.00			3.88		
Dominance	9.44			0.82			1.68			1.88		
Frequency	0.50			0.56			0.50			0.44		
Rel. Den.	28.22			11.51			4.38			16.99		
Rel. Dom.	29.64			2.59			5.26			5.91		
Rel. Freq	13.11			14.75			13.11			11.48		
Imp. Val.	70.98			28.85			22.76			34.37		

Table DB 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Al se Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: It vi Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ac ru Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Vi nu Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	8	103	1.5 151.0	9	42	0.3 13.2	8	16	1.7 26.8	7	62	0.5 30.1
Density	6.44			2.63			1.00			3.88		
Dominance	9.44			0.82			1.68			1.88		
Frequency	0.50			0.56			0.50			0.44		
Rel. Den.	28.22			11.51			4.38			16.99		
Rel. Dom.	29.64			2.59			5.26			5.91		
Rel. Freq	13.11			14.75			13.11			11.48		
Imp. Val.	70.98			28.85			22.76			34.37		

Species Richness= 7.415233 Diversity=0.854523

Table DB 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: My ce Common Name:			Species Name: Il op Common Name:			Species Name: Pe bo Common Name:			Species Name: Co st Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	14	0.5 6.8	1	7	1.7 11.7	3	4	0.7 2.6	2	7	1.7 11.9
	0.88			0.44			0.25			0.44	
	0.43			0.73			0.16			0.74	
	0.13			0.06			0.19			0.13	
	3.84			1.92			1.10			1.92	
	1.34			2.29			0.52			2.34	
	3.28			1.64			4.92			3.28	
	8.46			5.84			6.53			7.53	

Table DB 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Sa ca Common Name:			Species Name: Vi ru Common Name:			Species Name: Ly lu Common Name:			Species Name: Li st Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	4	1.5	2	6	1.3	1	2	0.5	1	4	1.5
		6.0			7.9			1.0			5.9
	0.25			0.38			0.13			0.25	
	0.37			0.49			0.06			0.37	
	0.13			0.13			0.06			0.06	
	1.10			1.64			0.55			1.10	
	1.17			1.54			0.20			1.15	
	3.28			3.28			1.64			1.64	
	5.55			6.46			2.39			3.89	

Table DB 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ca am Common Name:			Species Name: Ma vi Common Name:			Species Name: Il gl Common Name:			Species Name: Be ni Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.2	4	35	1.7	1	1	0.5	1	3	0.7
		0.4			58.5			0.5			2.2
	0.13			2.19			0.06			0.19	
	0.03			3.66			0.03			0.14	
	0.06			0.25			0.06			0.06	
	0.55			9.59			0.27			0.82	
	0.08			11.49			0.09			0.43	
	1.64			6.56			1.64			1.64	
	2.27			27.63			2.00			2.89	

Table DB 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Unknown-A Common Name:			Species Name: Ara sp Common Name:			Species Name: Ny sy Common Name:			Species Name: Le ax Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	39	1.3	1	5	0.7	3	7	1.5	2	2	53.2
		52.4			3.5			10.7			106.4
2.44			0.31			0.44			0.13		
3.27			0.22			0.67			6.65		
0.13			0.06			0.19			0.13		
10.68			1.37			1.92			0.55		
10.28			0.70			2.11			20.88		
3.28			1.64			4.92			3.28		
24.25			3.71			8.94			24.71		

Table DB 5-6

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DB 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	20		
	61 2.562292	365 73.08302	
		509.5450	
	3.8125		
	100		
	100		
	100		
	300		

Table DB 5-7

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: DB 1-28 Micro-plot No.: 28

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	7	0.75	0.2500	1.15	4.67	5.82
Al se	5	0.54	0.1786	0.83	3.33	4.16
An sp	1	0.11	0.0357	0.18	0.67	0.84
Ar gi	1	0.33	0.0357	0.50	0.67	1.17
At as	1	0.11	0.0357	0.18	0.67	0.84
Be ni	1	0.33	0.0357	0.50	0.67	1.17
Bi fr	2	0.43	0.0714	0.67	1.33	2.00
Bo cy	7	1.52	0.2500	2.34	4.67	7.01
Ca sp	2	0.22	0.0714	0.34	1.33	1.67
Ci ma	2	0.78	0.0714	1.21	1.33	2.54
Cy sp	3	0.32	0.1071	0.50	2.00	2.50
De ba	3	0.54	0.1071	0.83	2.00	2.83
Ga sp	1	0.11	0.0357	0.18	0.67	0.84
Ga ti	1	0.11	0.0357	0.18	0.67	0.84
Ge se	1	0.11	0.0357	0.18	0.67	0.84
Grass sp	4	2.30	0.1429	3.55	2.67	6.22
Hy mu	1	0.11	0.0357	0.18	0.67	0.84
Hy sp	4	0.85	0.1429	1.31	2.67	3.98
Hy ve	1	0.11	0.0357	0.18	0.67	0.84
Il op	1	0.11	0.0357	0.18	0.67	0.84
Im ca	18	17.86	0.6429	27.58	12.00	39.58
It vi	3	0.54	0.1071	0.83	2.00	2.83
Ju ef	1	0.11	0.0357	0.18	0.67	0.84
Le ax	1	2.69	0.0357	4.15	0.67	4.82
Le vi	1	0.33	0.0357	0.50	0.67	1.17
Lee sp	5	2.99	0.1786	4.62	3.33	7.95
Li st	1	0.11	0.0357	0.18	0.67	0.84
Lo ca	1	0.68	0.0357	1.04	0.67	1.71
Lo ja	1	0.33	0.0357	0.50	0.67	1.17
Lu sp	1	0.11	0.0357	0.18	0.67	0.84
Luz sp	1	0.33	0.0357	0.50	0.67	1.17
Ly lu	5	0.96	0.1786	1.48	3.33	4.81
Mi sc	4	0.85	0.1429	1.31	2.67	3.98

Table DB 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: DB 1-28 Micro-plot No.: 28

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Mu ke	9	6.63	0.3214	10.24	6.00	16.24
My ce	1	0.11	0.0357	0.18	0.67	0.84
Os ci	2	0.64	0.0714	0.99	1.33	2.32
Pa qu	1	0.11	0.0357	0.18	0.67	0.84
Pa sp	2	0.43	0.0714	0.67	1.33	2.00
Pan sp	2	0.43	0.0714	0.67	1.33	2.00
Pe vi	3	3.67	0.1071	5.67	2.00	7.67
Po pu	1	0.11	0.0357	0.18	0.67	0.84
Po sa	8	7.65	0.2857	11.82	5.33	17.15
Ru sp	3	0.32	0.1071	0.50	2.00	2.50
Sa la	4	0.64	0.1429	0.99	2.67	3.66
Sm ro	1	0.33	0.0357	0.50	0.67	1.17
Sm sp	3	0.32	0.1071	0.50	2.00	2.50
Tr sp	1	0.33	0.0357	0.50	0.67	1.17
Tr we	2	0.22	0.0714	0.34	1.33	1.67
Ty la	1	0.68	0.0357	1.04	0.67	1.71
Unknown A	1	0.11	0.0357	0.18	0.67	0.84
Vi nu	4	0.43	0.1429	0.66	2.67	3.33
Vio sp	2	0.22	0.0714	0.34	1.33	1.67
Wo ar	7	3.66	0.2500	5.66	4.67	10.32
	53	64.75	5.36	100.00	100.00	200.00

Richness= 23.90 Diversity= 0.89

Table DB 6-2

DA AREA

DA Area begins approximately 300 feet north of Banana Road and extends north to the confluence of Four Mile Creek and an unnamed tributary entering from the east (Figure 6). This sampling area has been dissected by several transmission line rights-of-way, and by Road 125. The DA Area is located within the Sunderland Terrace subregion of the Pleistocene Coastal Terraces. There is a change of approximately 20 feet in elevation, from 125 feet msl to 145 feet msl, over the 2.75-mile-stretch of study area.

A total of eight sample plots were established and sampled in DA Area (Figure 6). Leigh Road, Road 3, Road 125, and a logging road, which extends off Turner Road, were used to access the area.

A total of 76 plant species were documented within the sampling area. The species area curve indicated that sampling was sufficient with the completion of the fifth plot (Table DA-1).

The average canopy height for DA Area was 66 feet (Table DA-2).

Overstory Stratum (Table DA-3)

Eight plots were analyzed to sample the overstory vegetation for DA Area. Within the overstory stratum, a total of 93 individuals were measured representing a total of 10 distinct species. The entire sampling area had a diversity of 0.84, which represents a moderately diverse flora. One loblolly pine (Pinus taeda) was recorded with a basal area of 1,048 sq cm.

The species with the greatest I.V. was yellow poplar (Liriodendron tulipifera), which had an I.V. of 62.02. Next, in descending order of I.V., were sweet gum (Liquidambar styraciflua) (56.1), black gum (Nyssa sylvatica) (52.0), and bald cypress (Taxodium distichum) (I.V. 36.69).

Sweet gum had the highest relative density (29.0) and yellow poplar had the highest relative dominance (23.7).

Understory Stratum (Table DA-4)

A total of 16 subplots were sampled for the characterization of the understory stratum within DA Area. The area is moderately diverse in the vegetative composition with a diversity of 0.75. There were 11 different species representing the 94 individual specimens measured for the understory stratum.

The tag alder (Alnus serrulata) had the highest I.V. (75.62) of the area. Red maple (Acer rubrum) (I.V. 61.0), wax myrtle (Myrica cerifera) (54.29), and sweet gum (34.25), were next in order of I.V.'s.

The most frequently occurring species within the entire sampling area were red maple and wax myrtle with a relative frequency of 18.5 percent. The highest relative dominance was red maple with 29.7 percent and the greatest relative density was tag alder with 40.43 percent.

Shrub Layer Stratum (Table DA-5)

A total of 24 species were sampled within the 16 subplots in the DA Area shrub layer stratum. The stratum contained an extremely diverse assemblage of vegetation (diversity of 0.85). The highest I.V. for the area was tag alder with a value of 71.3, followed by wax myrtle with a value of 68.08, and Virginia willow (Itea virginica) with a value of 34.67.

The species with the highest relative density for the shrub sampling layer in the DA Area was tag alder which accounted for 25.0 percent of the relative density of the entire stand. Wax myrtle had the highest relative dominance, comprising 19.75 percent of the entire area sampled.

Wax myrtle was the most frequently occurring species within the DA Area shrub layer stratum with a relative frequency of 15.79 percent; a total of 79 individuals of this species were measured within the study area.

Ground Cover Stratum (Table DA-6)

The DA sampling area at SRS was measured from a total of 28 subplot locations. At the conclusion of the field measurements a total of 441 individuals of 61 species were recorded from this area. The species with the highest relative dominance for the DA ground cover stratum was marsh dewflower (Murdania keisak) with a value of 17.76 percent. Woolgrass (Scirpus cyperinus) had a relative dominance value of 9.30 percent. The remainder of the species recorded accounted for percentage values less than 7.0 percent of the entire plant species dominance. Murdania was the species containing the highest occurrence for this sampling area accounting for 7.5 percent of the relative frequency. The next most frequently occurring species was red maple with a relative frequency of 5.0 percent. Cutgrass (Leersia oryzoides) and woolgrass shared the next highest frequency of occurrence, each with a relative frequency of 4.5 percent.

The species with the highest I.V. for the DA sampling location was Murdania with an I.V. of 22.36. Woolgrass (I.V. 13.82) and cutgrass (I.V. 9.8) were the other dominant species recorded from this sampling area. Considering the number of species recorded and the total number of individual plots that were measured, this area represented a highly diverse area (diversity = 0.94).

DA AREA

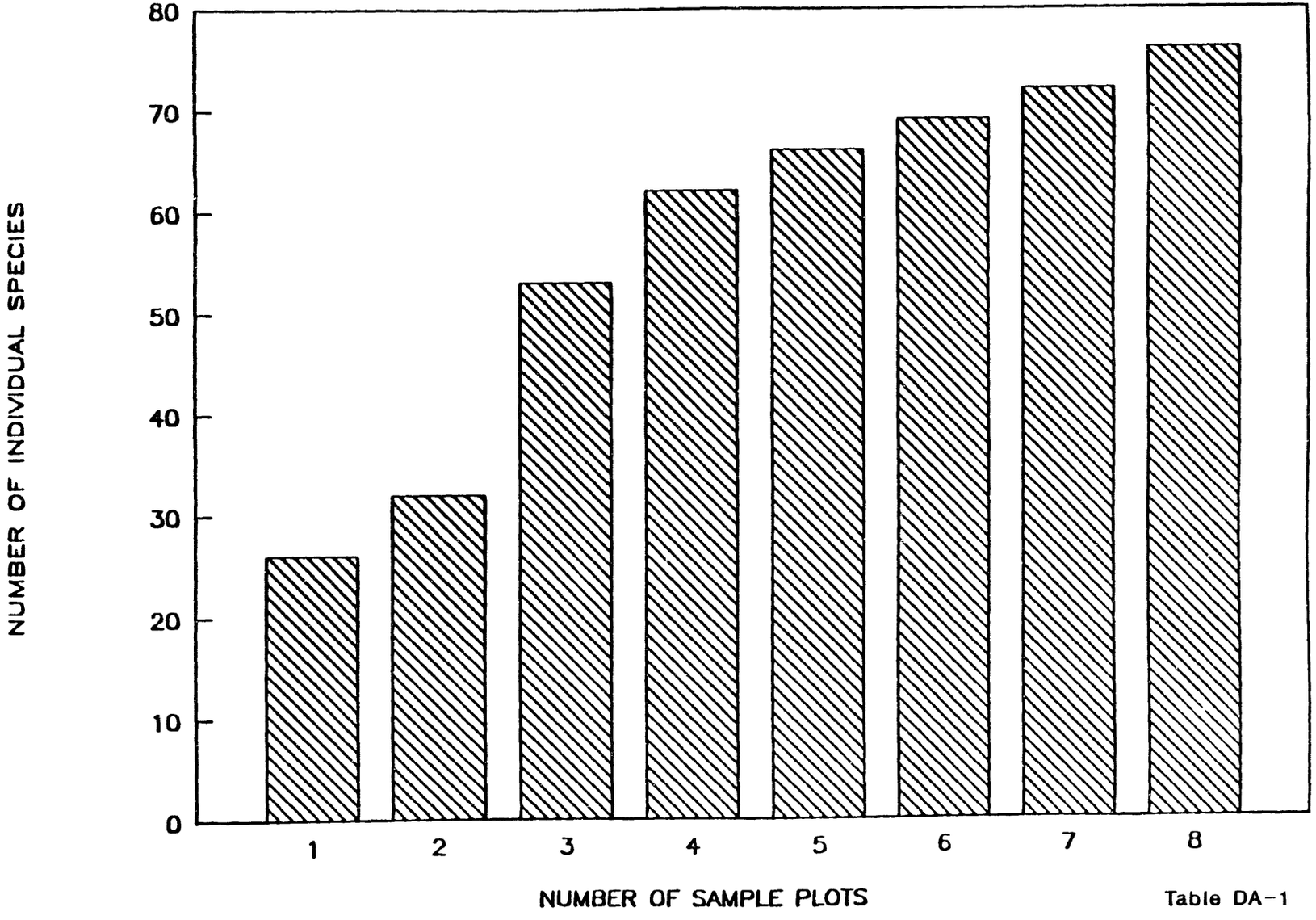


Table DA-1

Table DA-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

	Species Name: Li Tu			Species Name: Ny Sy			Species Name: Pe Bo			Species Name: Ac Ru		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	4	17	818.4	3	15	815.4	1	1	158.9	2	11	365.7
total			13912.9			12231.3			158.9			4023.0
Density	2.13			1.88			0.13			1.38		
Dominance	1739.12			1528.91			19.86			502.87		
Frequency	0.50			0.38			0.13			0.25		
Rel. Den.	18.28			16.13			1.08			11.83		
Rel. Dom.	23.74			20.87			0.27			6.86		
Rel. Freq	20.00			15.00			5.00			10.00		
Imp. Val.	62.02			52.00			6.35			28.69		

Species Richness= 4.318046 Diversity=0.839177

Table DA 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Qu Hi			Species Name: Ma Vi			Species Name: Ta Di			Species Name: Li St		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	3	209.1	2	5	520.0	2	5	2498.4	3	27	262.0
		627.4			2600.2			12492.1			7073.6
0.38			0.63			0.63			3.38		
78.42			325.03			1561.51			884.20		
0.13			0.25			0.25			0.38		
3.25			5.38			5.38			29.03		
1.07			4.44			21.31			12.07		
5.00			10.00			10.00			15.00		
9.30			19.81			36.69			56.10		

Table DA 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Pi oc			Species Name: Pi ta				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	6	390.6	1	3	1048.1	20 1.968482	93 7086.689
		2343.6			3144.2		58607.15
0.75			0.38				
292.95			393.03				
0.13			0.13			2.5	
6.45			3.23			100	
4.00			5.36			100	
5.00			5.00			100	
15.45			13.59			300	

Table DA 3-3

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-6

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Qu ni			Species Name: Ac ru			Species Name: Pe bo			Species Name: Ma vi		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	1	1	0.2	5	12	17.9	1	2	38.3	2	4	25.0
total			0.2			215.3			76.7			100.2
Density	0.06			0.75			0.13			0.25		
Dominance	0.01			13.46			4.79			6.26		
Frequency	0.06			0.31			0.06			0.13		
Rel. Den.	1.06			12.77			2.13			4.26		
Rel. Dom.	0.03			29.74			10.59			13.84		
Rel. Freq	3.70			18.52			3.70			7.41		
Imp. Val.	4.80			61.02			16.42			25.50		

Species Richness= 5.068095 Diversity=0.752688

Table DA 4-1

VEGETATION ANALYSIS

UNDERSTORY DATA

WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 total Subplot Area = 400.00

Species Name: Al se			Species Name: Il op			Species Name: My ce			Species Name: Te di		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	38	3.9	2	2	6.2	5	24	3.1	1	1	2.5
		147.6			12.4			74.1			2.5
2.38			0.13			1.50			0.06		
9.22			0.77			4.63			0.16		
0.25			0.13			0.31			0.06		
40.43			2.13			25.53			1.06		
20.38			1.71			10.24			0.34		
16.81			7.41			18.52			3.70		
75.62			11.24			54.29			5.11		

Table DA 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Li st			Species Name: Li tu			Species Name: Se ni				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
4	8	9.9	1	1	9.9	1	1	6.1	27 1.973127	94 123.1070
		79.1			9.9			6.1		724.0343
0.50			0.06			0.06				
4.94			0.62			0.38				
0.25			0.06			0.06			1.6875	
8.51			1.06			1.06			100	
10.92			1.37			0.85			100	
14.81			3.70			3.70			100	
34.25			6.14			5.61			300	

Table DA 4-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: De be			Species Name: It vi			Species Name: Ly lu			Species Name: My ce		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	1	1	1.3	6	73	0.5	3	24	0.3	12	79	1.8
total			1.3			37.9			8.4			144.7
Density	0.06			4.56			1.50			4.94		
Dominance	0.08			2.37			0.52			9.04		
Frequency	0.06			0.38			0.19			0.75		
Rel. Den.	0.25			18.25			6.00			19.75		
Rel. Dom.	0.28			8.52			1.88			32.54		
Rel. Freq	1.32			7.89			3.95			15.79		
Imp. Val.	1.85			34.67			11.83			68.08		

Species Richness= 8.839150 Diversity=0.852807

Table DA 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Il op			Species Name: Qu ly			Species Name: Pe bo			Species Name: Ma vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	5	3.3	1	1	0.5	5	23	0.5	4	22	0.9
		16.7			0.5			11.1			19.3
0.31			0.06			1.44			1.38		
1.04			0.03			0.69			1.20		
0.25			0.06			0.31			0.25		
1.25			0.25			5.75			5.50		
3.75			0.10			2.50			4.33		
5.26			1.32			6.58			5.26		
10.26			1.67			14.82			15.09		

Table DA 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Al se			Species Name: Vi ru			Species Name: Ac ru			Species Name: Li st		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
9	100	1.5	2	8	0.3	7	14	1.1	6	13	1.0
		153.3			2.5			15.4			13.4
6.25			0.50			0.88			0.81		
9.58			0.16			0.96			0.84		
0.56			0.13			0.44			0.38		
25.00			2.00			3.50			3.25		
36.47			0.56			3.46			3.02		
11.84			2.63			9.21			7.89		
71.31			5.19			16.17			14.16		

Table DA 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ca am				Species Name: Ch am				Species Name: To ra				Species Name: Qu ni			
Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)
2	2		0.3	1	4		0.7	1	3		0.5	1	2		0.5
			0.7				2.9				1.5				0.9
	0.13				0.25				0.19				0.13		
	0.04				0.18				0.09				0.06		
	0.13				0.06				0.06				0.06		
	0.50				1.00				0.75				0.50		
	0.15				0.66				0.33				0.21		
	2.63				1.32				1.32				1.32		
	3.28				2.98				2.40				2.02		

Table DA 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ia di			Species Name: Ce oc			Species Name: Co st			Species Name: Ny sy		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.8	1	2	2.5	1	2	1.1	1	1	2.5
		0.8			5.1			2.3			2.5
	0.06			0.13			0.13			0.06	
	0.05			0.32			0.14			0.16	
	0.06			0.06			0.06			0.06	
	0.25			0.50			0.50			0.25	
	0.18			1.14			0.51			0.56	
	1.32			1.32			1.32			1.32	
	1.75			2.96			2.33			2.12	

Table DA 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-B

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Pi te			Species Name: Il sp			Species Name: Se ni			Species Name: Se ca		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.2	2	2	0.5	3	15	0.1	1	2	0.2
		0.2			1.0			2.2			0.4
	0.06			0.13			0.94			0.13	
	0.01			0.06			0.14			0.03	
	0.06			0.13			0.19			0.06	
	0.25			0.50			3.75			0.50	
	0.05			0.23			0.49			0.09	
	1.32			2.63			3.95			1.32	
	1.61			3.36			8.19			1.91	

Table DA 5-6

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: DA 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

76 2.602059 400 23.12487
444.7371

0.16

4.75

100

100

100

300

Table DA 5-7

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: DA 1-28 Micro-plot No.: 28

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac ru	10	1.27	0.3571	1.06	5.03	6.09
Al se	6	3.21	0.2143	2.68	3.02	5.70
Am ar	1	0.99	0.0357	0.83	0.50	1.33
Ar se	1	0.33	0.0357	0.27	0.50	0.77
At as	1	0.11	0.0357	0.10	0.50	0.60
Bi fr	6	4.76	0.2143	3.97	3.02	6.98
Bo cy	6	2.39	0.2143	2.00	3.02	5.01
Ca am	1	0.68	0.0357	0.56	0.50	1.07
Ca ro	2	2.02	0.0714	1.68	1.01	2.69
Ca sp	2	0.22	0.0714	0.18	1.01	1.19
Ce oc	1	0.11	0.0357	0.10	0.50	0.60
Ci ma	7	1.59	0.2500	1.25	3.54	4.78
Cy da	1	0.68	0.0357	0.56	0.50	1.07
Cy sp	3	0.54	0.1071	0.45	1.51	1.95
De ba	1	0.33	0.0357	0.27	0.50	0.77
Eu ca	1	0.68	0.0357	0.56	0.50	1.07
Ga ti	3	0.89	0.1071	0.74	1.51	2.25
Ge se	3	0.32	0.1071	0.27	1.51	1.78
He ar	2	0.43	0.0714	0.36	1.01	1.36
Hy mu	3	0.32	0.1071	0.27	1.51	1.78
Hy ra	3	0.54	0.1071	0.45	1.51	1.95
Im ca	3	0.54	0.1071	0.45	1.51	1.95
It vi	2	2.79	0.0714	2.33	1.01	3.34
Ju ef	8	3.24	0.2857	2.70	4.02	6.72
Le or	9	6.32	0.3214	5.27	4.52	9.80
Le sp	1	0.68	0.0357	0.56	0.50	1.07
Li tu	1	0.11	0.0357	0.10	0.50	0.60
Lo ja	5	4.55	0.1786	3.80	2.51	6.31
Lu al	2	0.22	0.0714	0.18	1.01	1.19
Lu le	1	1.35	0.0357	1.13	0.50	1.63
Ly lu	2	5.37	0.0714	4.48	1.01	5.48

Table DA 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: DA 1-28 Micro-plot No.: 28

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Mi re	1	0.11	0.0357	0.10	0.50	0.60
Mi sc	5	0.96	0.1786	0.80	2.51	3.31
Mu ke	15	17.76	0.5357	14.82	7.54	22.36
My ce	1	2.69	0.0357	2.24	0.50	2.75
Os ci	3	4.13	0.1071	3.45	1.51	4.96
Pa qu	1	0.11	0.0357	0.10	0.50	0.60
Pa ri	1	0.33	0.0357	0.27	0.50	0.77
Pa sp	3	1.56	0.1071	1.30	1.51	2.81
Pa ur	7	7.47	0.2500	6.23	3.52	9.75
Pe bo	1	0.68	0.0357	0.56	0.50	1.07
Pl ca	1	0.11	0.0357	0.10	0.50	0.60
Po hy	2	0.22	0.0714	0.18	1.01	1.19
Po pu	2	0.99	0.0714	0.83	1.01	1.83
Po sa	4	1.06	0.1429	0.89	2.01	2.90
Qu ni	2	0.78	0.0714	0.65	1.01	1.66
Ru sp	6	1.48	0.2143	1.24	3.02	4.25
Sa la	3	2.01	0.1071	1.67	1.51	3.18
Sa ni	1	0.11	0.0357	0.10	0.50	0.60
Sa sp	1	0.11	0.0357	0.10	0.50	0.60
Sc cy	9	11.14	0.3214	9.30	4.52	13.82
Sm gl	1	0.11	0.0357	0.10	0.50	0.60
So gi	3	0.54	0.1071	0.45	1.51	1.95
To ra	1	0.33	0.0357	0.27	0.50	0.77
Tr wa	1	1.35	0.0357	1.13	0.50	1.63
Ty la	8	2.74	0.2857	2.29	4.02	6.31
Unknown a	4	3.21	0.1429	2.68	2.01	4.69
Unknown b	1	0.11	0.0357	0.10	0.50	0.60
Unknown c	1	0.11	0.0357	0.10	0.50	0.60
Wi fr	6	6.69	0.2143	5.58	3.02	8.60
Wo ar	1	0.11	0.0357	0.10	0.50	0.60
	61	127.24	7.07	100.00	100.00	200.00

Richness=60.5645860 Diversity= 0.946478

Table DA 6-2

D AREA

The sampling area designated as D Area begins at Risher Pond Road and extends south to the delta region on Four Mile Creek (Figure 6). The site is located approximately 1.25 miles southeast of D reactor and 1.5 miles northeast of the confluence with Savannah River. D Area is situated within portions the Sunderland Terrace and the Wicomico Terrace subregions of the Pleistocene Coastal Terraces and ranges in elevation between 95 feet msl to 85 feet msl.

Eight plots were sampled within D Area (Figure 6). The plots were spaced approximately 0.1 mile apart. An odometer was used to mark the distances between plots while traveling parallel to the sample area, on Hog Barn Road.

Sixty-eight species occurred within the D Area sampling plots. Analysis of the species area curve shows the sampling to be sufficient after the completion of eight plots (Table D-1).

Overstory Stratum

No overstory vegetation was found to occur in D Area as all sampling sites were within the braided streams area of the Four Mile Creek floodplain. All overstory vegetation had long since been removed from the area due to the upstream thermal effluent release from the reactors. Many dead snags, which were mainly bald cypress (Taxodium distichum), now occupy the delta region of Four Mile Creek.

Understory Stratum (Table D-2)

The understory stratum for D Area yielded a diversity value of 0.65 through the 16 subplots which were sampled. There were a total of seven different species within the sampling area, comprising the 75 individuals measured. The sampling site within D Area consisted mainly of emergent community types.

Tag alder (Alnus serrulata) was the dominant species based on the I.V., comprising 109.5 percentage points of the possible 300. Black willow (Salix nigra) was also well represented by a 79.9 I.V. in the D sampling area. Both the tag alder and black willow had a relative frequency of 23.08.

Tag alder had the greatest relative dominance (41.14) and had the greatest relative density (45.3).

Shrub Layer Stratum (Table D-3)

Ten species were measured within the D Area shrub layer stratum of Four Mile Creek. A total of 16 subplots were sampled with 139 individuals being measured. The shrub layer stratum had a moderate diversity of 0.68.

Based on I.V., the dominant species was black willow (I.V. 116.6). Other dominant species, in descending order of I.V.'s, were tag alder (103.75) and bay berry (Myrica heterophylla) (I.V. 28.63).

Black willow had the highest relative frequency value (25.8) with 53 individuals recorded within the shrub layer. Black willow also had the highest relative dominance (52.7). Tag alder comprised a relative density of 41.01 percent of the entire stand sampled.

Ground Cover Stratum (Table D-4)

Within the D sampling area at SRS, a total of 40 ground stratum microplots were measured. A total of 72 individual species were recorded from the field program in this location. The species with the greatest dominance for the area was cutgrass (Leersia oryzoides) with a relative dominance of 15.93 percent. The next species in descending order of dominance was climbing hempweed (Mikania scandens) with a relative dominance of 9.24 percent. False nettle (Boehermia cylindrica) and tear-thumb

(Polygonum sagittatum) were the remaining dominant species with relative dominance values of 7.35 and 6.98 percent, respectively.

The species with the greatest frequency of occurrence for the D Area ground cover stratum were, in descending order, climbing hempweed (7.99 percent), false nettle (7.35 percent), knotweed (Polygonum punctatum) (6.39 percent) and tear-thumb (Polygonum sagittatum) (5.43 percent). The species with the highest I.V.'s closely follow the results obtained for the relative frequency. Those species include cutgrass (I.V. 21.04), climbing hempweed (I.V. 17.23), false nettle (I.V. 15.32), tear-thumb (I.V. 12.41), and knotweed (I.V. 12.35).

The D Area had the highest species diversity for all of the areas recorded during the field program at SRS during this program (diversity of 0.94).

D AREA

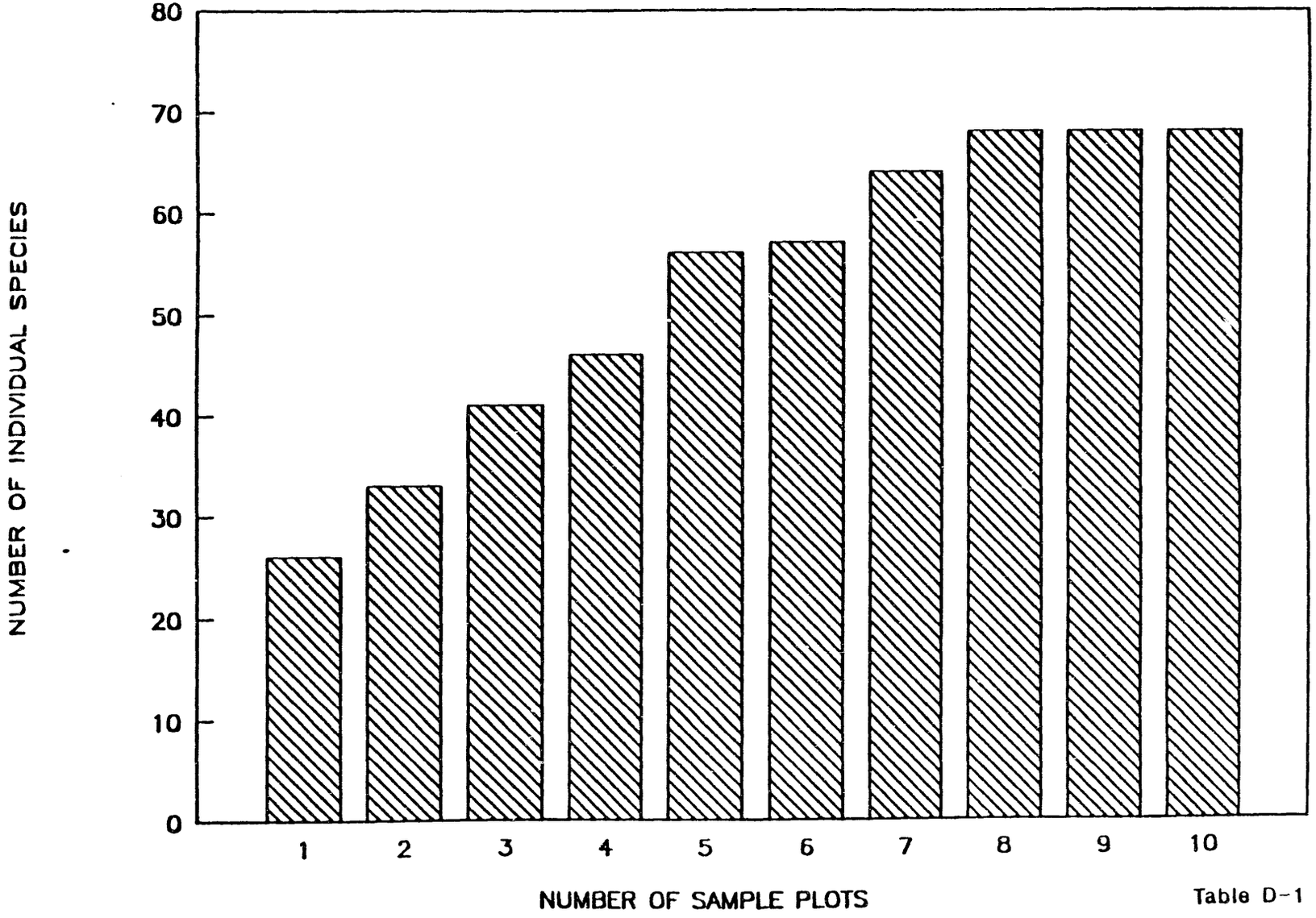


Table D-1

Dames & Moore

Table D-2

Four Mile Creek
Average Tree Canopy Heights

	HC	HB	FA	FB	FC	DB	DA	D
1	56	**	62	78	73	**	64	**
2	65	**	94	61	58	70	65	**
3	**	95	61	80	40	70	**	**
4	**	XX	68	42	XX	75	60	**
5	71	XX	64	**	XX	**	**	**
6	38	XX	XX	XX	XX	**	**	**
7	48	XX	XX	XX	XX	**	75	**
8	70	XX	XX	XX	XX	50	**	**
AVG. HT.	58	95	70	65	57	66	66	**

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

Note: all measurements represent tree canopy heights in feet.

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: D 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Al se			Species Name: My he			Species Name: Pi ta			Species Name: Sa ni		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	34	2.5	2	4	10.1	2	5	1.9	3	29	1.3
total			86.3			40.6			9.7			38.1
Density	1.70			0.20			0.25			1.45		
Dominance	4.31			2.03			0.48			1.91		
Frequency	0.15			0.10			0.10			0.15		
Rel. Den.	45.33			5.33			6.67			38.67		
Rel. Dom.	41.14			19.35			4.61			18.16		
Rel. Freq	23.08			15.38			15.38			23.08		
Imp. Val.	109.55			40.07			26.66			79.91		

Species Richness= 3.199895 Diversity=0.645765

Table D 2-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: D 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ac ru	Species Name: My ce	Species Name: Li st		
			7	
Plot I.D. # Diameter (in.) Basal Area (cm)	Plot I.D. # Diameter (in.) Basal Area (cm)	Plot I.D. # Diameter (in.) Basal Area (cm)		
1 1 7.3	1 1 16.4	1 1 11.4	13 1.875061	75 51.04922
7.3	16.4	11.4		209.7768
0.05	0.05	0.05		
0.36	0.82	0.57		
0.05	0.05	0.05	0.65	
1.33	1.33	1.33	100	
3.48	7.83	5.43	100	
7.69	7.69	7.69	100	
12.50	16.85	14.46	300	

Table D 2-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: D 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Al se			Species Name: My he			Species Name: Pi ta			Species Name: Ac ru		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	7	57	5.2	5	11	3.0	3	6	2.2	2	2	0.2
total			293.9			33.5			13.1			0.4
Density	3.56			0.69			0.38			0.13		
Dominance	18.37			2.10			0.82			0.03		
Frequency	0.44			0.31			0.19			0.13		
Rel. Den.	41.01			7.91			4.32			1.44		
Rel. Dom.	40.16			4.58			1.79			0.06		
Rel. Freq	22.58			16.13			9.68			6.45		
Imp. Val.	103.75			28.63			15.78			7.95		

Species Richness= 4.199691 Diversity=0.680950

Table D 3-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: D 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Sa ni			Species Name: Ba ha			Species Name: Ce oc			Species Name: Ca ca		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
8	53	7.3	1	1	3.2	1	1	0.5	2	6	0.1
		385.8			3.2			0.5			0.3
3.31			0.06			0.06			0.38		
24.11			0.20			0.03			0.02		
0.50			0.06			0.06			0.13		
38.13			0.72			0.72			4.32		
52.72			0.44			0.06			0.04		
25.81			3.23			3.23			6.45		
116.66			4.39			4.01			10.81		

Table D 3-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: D 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Di vi			Species Name: Li st				
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
	1	1	0.2	1	1	0.8	31 2.143014	139 22.62938
			0.2			0.8		731.7362
	0.06			0.06				
	0.01			0.05				
	0.06			0.06			1.9375	
	0.72			0.72			100	
	0.03			0.11			100	
	3.23			3.23			100	
	3.97			4.06			300	

Table D 3-3

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: D 1-40 Micro-plot No.: 40

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	3	0.30	0.0750	0.21	0.96	1.17
Al Se	2	1.96	0.0500	1.34	0.64	1.98
Am Ar	2	1.02	0.0500	0.70	0.64	1.34
As sp	5	1.24	0.1250	0.85	1.60	2.45
Bi Fr	8	1.21	0.2000	0.83	2.56	3.39
Bi Sp	3	0.30	0.0750	0.21	0.96	1.17
Bo cy	23	11.61	0.5750	7.97	7.35	15.32
Ca jo	1	1.88	0.0250	1.29	0.32	1.61
Car sp	3	0.23	0.0750	0.16	0.96	1.12
Ce Oc	1	0.23	0.0250	0.16	0.32	0.48
Ci Ma	8	3.43	0.2000	2.36	2.56	4.91
Co Sp	1	0.48	0.0250	0.33	0.32	0.65
Cy Sp	2	0.23	0.0500	0.16	0.64	0.80
De Ve	1	0.01	0.0250	0.01	0.32	0.33
Dio vi	1	0.01	0.0250	0.01	0.32	0.33
Ec sp	1	0.01	0.0250	0.01	0.32	0.33
Eu Ca	9	2.99	0.2250	2.05	2.88	4.93
Eu pe	1	0.23	0.0250	0.16	0.32	0.48
Ga Sp	1	0.01	0.0250	0.01	0.32	0.33
Ga ti	2	0.48	0.0500	0.33	0.64	0.97
Hy qu	1	0.48	0.0250	0.33	0.32	0.65
Hy Sp	15	2.93	0.3750	2.01	4.79	6.80
Im Ca	15	5.97	0.3750	4.10	4.79	8.90
Ju Ef	14	4.98	0.3500	3.42	4.47	7.89
La Ca	2	1.96	0.0500	1.34	0.64	1.98
La Sp	10	2.94	0.2500	2.02	3.19	5.21
Le cu	9	2.45	0.2250	1.68	2.88	4.55
Le or	16	23.19	0.4000	15.93	5.11	21.04
Lu Al	3	0.77	0.0750	0.53	0.96	1.49
Lu Gl	1	0.08	0.0250	0.06	0.32	0.38
Lu sp	2	0.30	0.0500	0.21	0.64	0.85

Table D 4-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: D 1-40 Micro-plot No.: 40

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Lyc Sp	2	0.45	0.0500	0.31	0.64	0.95
Mi Al	2	0.45	0.0500	0.31	0.64	0.95
Mi sc	25	13.46	0.6250	9.24	7.99	17.23
Na Of	1	0.48	0.0250	0.33	0.32	0.65
Na Sp	1	0.48	0.0250	0.33	0.32	0.65
Pa Fl	3	1.16	0.0750	0.80	0.96	1.76
Pan sp	3	0.30	0.0750	0.21	0.96	1.17
Pe bo	1	0.08	0.0250	0.06	0.32	0.38
Pe vi	1	0.08	0.0250	0.06	0.32	0.38
Pi pu	1	0.01	0.0250	0.01	0.32	0.33
Pi Ta	1	0.01	0.0250	0.01	0.32	0.33
Po Pu	20	8.68	0.5000	5.96	6.39	12.35
Po Sa	17	10.16	0.4250	6.98	5.43	12.41
Ru Sp	3	0.23	0.0750	0.16	0.96	1.12
Sa Gi	1	0.01	0.0250	0.01	0.32	0.33
Sa Mo	2	0.30	0.0500	0.21	0.64	0.85
Sa ni	8	1.92	0.2000	1.32	2.56	3.88
Sa Sp	3	1.02	0.0750	0.70	0.96	1.66
Sc cy	16	8.34	0.4000	5.72	5.11	10.84
Tr Wa	2	2.82	0.0500	1.94	0.64	2.58
Tra sp	3	0.38	0.0750	0.26	0.96	1.22
Ty La	1	0.23	0.0250	0.16	0.32	0.48
Un Cyperus	1	0.08	0.0250	0.06	0.32	0.38
Unknown A	2	1.17	0.0500	0.80	0.64	1.44
Unknown B	1	0.23	0.0250	0.16	0.32	0.48
Unknown C	1	0.48	0.0250	0.33	0.32	0.65
Unknown D	1	0.08	0.0250	0.06	0.32	0.38
Unknown E	3	2.90	0.0750	1.99	0.96	2.95
Unknown F	2	0.70	0.0500	0.48	0.64	1.12
Unknown G	1	0.23	0.0250	0.16	0.32	0.48
Unknown H	1	0.08	0.0250	0.06	0.32	0.38
Unknown I	1	0.48	0.0250	0.33	0.32	0.65

Table D 4-2

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: D 1-40 Micro-plot No.: 40

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Unknown J	4	4.92	0.1000	3.38	1.28	4.66
Unknown K	3	4.70	0.0750	3.23	0.96	4.18
Unknown L	1	0.48	0.0250	0.33	0.32	0.65
Unknown M	2	2.82	0.0500	1.94	0.64	2.58
Unknown N	1	0.48	0.0250	0.33	0.32	0.65
Unknown O	2	0.45	0.0500	0.31	0.64	0.95
Unknown P	1	0.08	0.0250	0.06	0.32	0.38
Unknown Q	1	0.23	0.0250	0.16	0.32	0.48
Wo Ar	1	0.08	0.0250	0.06	0.32	0.38
	72	145.63	7.8250	100.00	100	200
	Richness=	28.45		Diversity=	0.94	

Table D 4-3

8.0 RESULTS AND DISCUSSION - PEN BRANCH

I AREA

I Area is located in the upper reaches of the Pen Branch drainage basin. This area has been not been impacted from thermal effluent from the reactors; however, several other forms of alteration exist within the sampling plot areas. The most extensive change has been brought about due to logging practices throughout the eastern fork of Pen Branch and new construction approximately 1000 feet south of the junction of Road 3 and Road F. Also contributing to the alteration of I Area are the many roads (gravel and logging) and a railway track which runs through the area. The western fork of Pen Branch has been relatively undisturbed from SRS functions.

I Area sampling plots are located on Pen Branch approximately 500 feet southwest of Road F and extend in a southwest direction for approximately 1.5 miles to Road C (Figure 7). This section of Pen Branch is within the Aiken Plateau subregion of the Upper Coastal Plain province and ranges in elevation from 300 feet msl down to 200 feet msl.

A total of eight plots were sampled in I Area (Figure 7). Access to the site was gained through use of Williams Road, the railroad track right-of-way, and the many logging roads which run throughout the area.

There were a total of 58 species documented during sampling of the I Area. Analysis of the species area curve indicates sampling of the vegetation was sufficient to characterize the species diversity of the area after the completion of sample plot 3 (Table I-1).

The average height of the overstory canopy was 75 feet (Table I-2).

Overstory Stratum (Table I-3)

A total of 151 specimens of 8 species were measured for dbh to determine total basal area coverage within the 8 overstory stratum sampling plots (diversity of 0.61). Black gum (Nyssa sylvatica) had the greatest total basal area coverage with 77,976.5 sq cm giving a relative dominance value of 72.19 percent. Sweet gum (Liquidambar styraciflua) had 16,160.1 sq cm of total basal area coverage to rank second with a relative dominance of 14.96 percent. The other 6 species occurring in the sampling plots combined for the remaining 12.85 percentage points of the relative dominance calculation.

Black gum also had the greatest importance value with a total of 153.19 points of the possible 300. Following black gum, in descending order of importance, were sweet gum (I.V. of 54.24), red maple (Acer rubrum) (I.V. of 30.36), and American holly (Ilex opaca) with a value of 29.53.

Both sweet gum and black gum were found in five of the eight plots sampled for a relative frequency of 22.73 percent of the total area sampled. Red maple was in four of the plots for a relative frequency of 18.18 percent. The highest relative density was recorded for black gum (relative density of 58.28).

Understory Stratum (Table I-4)

I Area understory vegetation had a high diversity for the vegetation sampled (diversity of 0.86). A total of 107 individual specimens yielded a total basal area coverage of 1859.64 sq cm. American holly contributed 729.1 sq cm of the total basal area coverage for the understory in I Area for a relative dominance of 39.21 percent. Sweet gum was next with 370.3 sq cm yielding a relative dominance of 19.91.

According to the importance value, American holly was again the dominant species with an I.V. of 77.72. Sweet gum followed with an I.V. of 53.05, and black gum was third with an I.V. of 33.32.

American holly also had the greatest relative density and relative frequency with 22 specimens giving a R.D. of 20.56 and seven plot occurrences giving a R.F. of 17.95.

Shrub Layer Stratum (Table I-5)

A total of 276 individual specimens were measured within the 16 plots sampled in I Area shrub layer. The area had an extremely high diversity with a value of 0.91 and a total of 35 species. Tag alder (Alnus serrulata) had the highest importance value with a total of 48.50 points. Other species with high importance values were sweet gum, red bay (Persea borbonia), American holly, sweet bay, and red maple.

Two species, sweet gum and American holly, held the highest relative frequency with each having seven plot occurrences for a relative frequency of 8.97 percent of the stratum sampled. Virginia willow (Itea virginica) and sweet bay followed with relative frequencies of 7.69 and 6.41, respectively. Tag alder had 44 individuals for a relative density of 15.94.

Tag alder had the greatest relative dominance with a value of 28.71 through a basal area coverage of 88.8 sq cm, more than double the coverage of any of the other species present within the site.

Ground Cover Stratum (Table I-6)

The vegetation was highly diverse for the I Area ground cover stratum. A total of 52 species were found to occur within the 23 plots sampled, yielding a high diversity index of 0.92.

Royal fern (Osmunda regalis) had the highest importance value with a total of 19.37 points of a possible 200. A species of blackberry (Rubus sp.) was second with a tally of 16.68 points. Woolgrass (Scirpus cyperinus) was third with 13.79 and forth was St. John's wort (Hypericum sp.) with 12.40 points.

Netted chain-fern (Woodwardia areolata) had the highest frequency of occurrence with seven sample plots being occupied for a relative frequency of 4.29 percent. Royal fern followed with a relative frequency of 3.68 percent of the area sampled. There were six species each found in five plots for a relative frequency of 3.07.

The species that was most dominant within I Area ground cover was royal fern with a relative dominance of 15.69. Royal fern was followed by blackberry (13.0), round-leaf catbriar (Smilax rotundifolia) (10.73), St. John's wort (9.95), and sedge (Carex sp.) (5.57).

I AREA

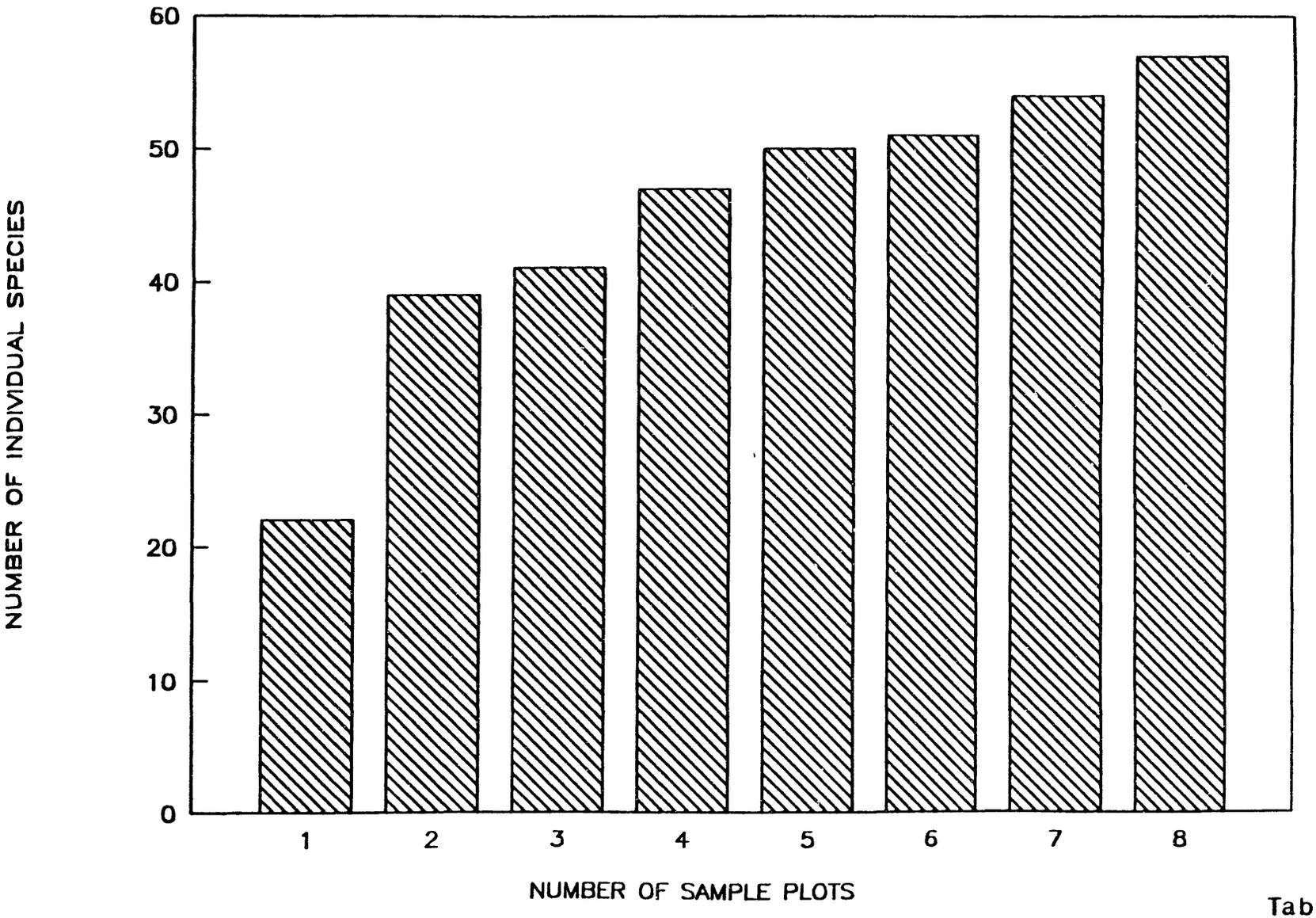


Table I-1

TABLE I-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Li st				Species Name: Il op				Species Name: Qu ni				Species Name: Ma vi			
	Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	5	25	646.4		3	16	357.6		2	5	567.8		1	3	168.0
total			16160.1				5721.3				2838.8				503.9
Density	3.13				2.00				0.63				0.38		
Dominance	2020.01				715.17				354.85				62.98		
Frequency	0.63				0.38				0.25				0.13		
Rel. Den.	16.56				10.60				3.31				1.99		
Rel. Dom.	14.96				5.30				2.63				0.47		
Rel. Freq	22.73				13.64				9.09				4.55		
Imp. Val.	54.24				29.53				15.03				7.00		

Species Richness= 3.212516 Diversity=0.617924

Table I 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

Species Name: Ac ru			Species Name: Li tu			Species Name: Ny sy			Species Name: Ac savl		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	12	381.3	1	1	137.0	5	88	886.1	1	1	107.2
		4575.6			137.0			77976.5			107.2
1.50			0.13			11.00			0.13		
571.95			17.13			9747.06			13.40		
0.50			0.13			0.63			0.13		
7.95			0.66			58.28			0.66		
4.24			0.13			72.19			0.10		
18.18			4.55			22.73			4.55		
30.36			5.33			153.19			5.31		

Table I 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 8 Total Subplot Area = 4000.00

	8
22 2.178976	151 3251.341
	108020.4
	2.75
	100
	100
	100
	300

Table I 3-3

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Li tu				Species Name: Al se				Species Name: Ma vi				Species Name: Rh gl			
	Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	1	3	8.2		3	10	5.8		3	9	8.6		2	15	7.5
total			24.5				58.4				77.4				112.8
Density	0.19				0.63				0.56				0.94		
Dominance	1.53				3.65				4.84				7.05		
Frequency	0.06				0.19				0.19				0.13		
Rel. Den.	2.80				9.35				8.41				14.02		
Rel. Dom.	1.32				3.14				4.16				6.07		
Rel. Freq	2.56				7.69				7.69				5.13		
Imp. Val.	6.69				20.18				20.27				25.21		

Species Richness= 6.405885 Diversity=0.885205

Table I 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Qu ni			Species Name: Pe bo			Species Name: Li st			Species Name: Il op		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	5	15.1	2	3	11.5	6	19	19.5	7	22	33.1
		75.3			34.5			370.3			729.1
0.31			0.19			1.19			1.38		
4.71			2.16			23.14			45.57		
0.19			0.13			0.38			0.44		
4.67			2.80			17.76			20.56		
4.05			1.86			19.91			39.21		
7.69			5.13			15.38			17.95		
16.41			9.79			53.05			77.72		

Table I 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ac ru			Species Name: So ar			Species Name: Ca ca			Species Name: Co fl		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	6	4.7	1	3	6.6	2	2	6.1	1	1	24.5
		28.5			19.7			12.3			24.5
0.38			0.19			0.13			0.06		
1.78			1.23			0.77			1.53		
0.19			0.06			0.13			0.06		
5.61			2.80			1.87			0.93		
1.53			1.06			0.66			1.32		
7.69			2.56			5.13			2.56		
14.83			6.43			7.66			4.82		

Table I 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ny sy			Species Name: Unknown				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	14	
4	8	36.2	1	1	2.5	39 2.029383	107 190.0010
		289.8			2.5		1859.641
0.50			0.06				
18.11			0.16				
0.25			0.06			2.4375	
7.48			0.93			100	
15.59			0.13			100	
10.26			2.56			100	
33.32			3.63			300	

Table I 4-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

	Species Name: Li st			Species Name: Rh gl			Species Name: Il op			Species Name: Li tu		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	7	32	0.8	3	8	1.6	7	17	2.1	2	2	0.2
total			26.0			12.7			36.3			0.4
Density	2.00			0.50			1.06			0.13		
Dominance	1.63			0.79			2.27			0.03		
Frequency	0.44			0.19			0.44			0.13		
Rel. Den.	11.59			2.90			6.16			0.72		
Rel. Dom.	8.42			4.11			11.75			0.13		
Rel. Freq	8.97			3.85			8.97			2.56		
Imp. Val.	28.99			10.85			26.88			3.42		

Species Richness= 13.92923 Diversity=0.917417

Table I 5-1

Dames & Moore

Table D 4-3

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Pi ta			Species Name: Go la			Species Name: Ac ru			Species Name: Sm la		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	4	0.5	1	2	0.1	3	16	1.4	2	2	0.7
		1.9			0.1			22.9			1.5
0.25			0.13			1.00			0.13		
0.12			0.01			1.43			0.09		
0.13			0.06			0.19			0.13		
1.45			0.72			5.80			0.72		
0.62			0.03			7.39			0.48		
2.56			1.28			3.85			2.56		
4.64			2.04			17.03			3.76		

Table I 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Il vo			Species Name: Pe bo			Species Name: Al se			Species Name: Ma vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.8	4	37	0.9	3	44	2.0	6	15	1.4
		1.6			32.0			88.8			20.7
0.13			2.31			2.75			0.94		
0.10			2.00			5.55			1.29		
0.06			0.25			0.19			0.38		
0.72			13.41			15.94			5.43		
0.52			10.34			28.71			6.69		
1.28			5.13			3.85			7.69		
2.53			28.87			48.50			19.81		

Table I 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Qu ni			Species Name: Vi ro			Species Name: Ly lu			Species Name: It vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	5	1.0	2	5	0.9	2	4	1.6	5	19	0.5
		5.1			4.6			6.2			9.7
0.31			0.31			0.25			1.19		
0.32			0.29			0.39			0.60		
0.25			0.13			0.13			0.31		
1.81			1.81			1.45			6.88		
1.66			1.47			2.02			3.13		
5.13			2.56			2.56			6.41		
8.59			5.85			6.03			16.42		

Table I 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ca ca			Species Name: Pa qu			Species Name: Mo ru			Species Name: So ar		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	4	0.6	1	1	0.1	1	1	1.3	1	1	0.8
		2.3			0.1			1.3			0.8
0.25			0.06			0.06			0.06		
0.15			0.00			0.08			0.05		
0.06			0.06			0.06			0.06		
1.45			0.36			0.36			0.36		
0.75			0.02			0.41			0.26		
1.28			1.28			1.28			1.28		
3.49			1.66			2.05			1.91		

Table I 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Co fl			Species Name: Il de			Species Name: Ny sy			Species Name: Unknown 1		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	1.3	2	2	0.2	1	2	0.5	2	4	1.2
		1.3			0.4			1.0			5.0
	0.06			0.13			0.13			0.25	
	0.08			0.03			0.06			0.31	
	0.06			0.13			0.06			0.13	
	0.36			0.72			0.72			1.45	
	0.41			0.13			0.33			1.61	
	1.28			2.56			1.28			2.56	
	2.05			3.42			2.33			5.62	

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Sm spp			Species Name: Vi ru			Species Name: Unknown 2			Species Name: To ra		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	1.8	3	29	0.3	1	2	0.8	1	2	0.1
		1.8			8.9			1.6			0.3
0.06			1.81			0.13			0.13		
0.11			0.56			0.10			0.02		
0.06			0.19			0.06			0.06		
0.36			10.51			0.72			0.72		
0.59			2.88			0.52			0.08		
1.28			3.85			1.28			1.28		
2.23			17.24			2.53			2.09		

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Ca ra			Species Name: Unknown 3			Species Name: Unknown 5			Species Name: Unknown 6		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.2	1	1	0.8	2	4	0.7	1	2	1.0
		0.2			0.8			2.6			2.0
	0.06			0.06			0.25			0.13	
	0.01			0.05			0.16			0.13	
	0.06			0.06			0.13			0.06	
	0.36			0.36			1.45			0.72	
	0.07			0.26			0.85			0.66	
	1.28			1.28			2.56			1.28	
	1.71			1.91			4.87			2.66	

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: I 1-8

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 16 Total Subplot Area = 400.00

Species Name: Unknown 7			Species Name: Sm ro			Species Name: My he					
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		35	
1	2	2.2	1	1	0.8	1	1	3.2	78	276	276
		4.3			0.8			3.2	78	2.440909	276
0.13			0.06			0.06					
0.27			0.05			0.20					
0.06			0.06			0.06				4.875	
0.72			0.36			0.36				100	
1.39			0.26			1.05				100	
1.28			1.28			1.28				100	
3.40			1.91			2.69				300	

Table I 5-9

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: I Micro-plot No.: 23

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	4	0.52	0.1739	0.80	2.45	3.25
Al Se	5	0.52	0.2174	0.79	3.07	3.86
Ar gi	5	2.28	0.2174	3.48	3.07	6.54
Ar vi	2	0.14	0.0870	0.21	1.23	1.44
Ba ha	2	0.01	0.0870	0.02	1.23	1.24
Be sc	2	0.01	0.0870	0.02	1.23	1.24
Ca am	2	0.14	0.0870	0.21	1.23	1.44
Car sp	3	3.65	0.1304	5.57	1.84	7.41
Ce Oc	2	0.39	0.0870	0.60	1.23	1.83
Cy Sp	2	3.27	0.0870	4.98	1.23	6.21
Di vi	2	0.14	0.0870	0.21	1.23	1.44
Ele sp	2	0.14	0.0870	0.21	1.23	1.44
Eu Ca	4	4.08	0.1739	6.21	2.45	8.67
Eu pe	2	0.01	0.0870	0.02	1.23	1.24
Ge se	2	0.01	0.0870	0.02	1.23	1.24
Ge se	2	0.14	0.0870	0.21	1.23	1.44
Hy Sp	4	6.53	0.1739	9.95	2.45	12.40
Il op	3	0.01	0.1304	0.02	1.84	1.86
Il vo	2	0.39	0.0870	0.60	1.23	1.83
It vi	4	1.76	0.1739	2.68	2.45	5.13
La Sp	2	0.14	0.0870	0.21	1.23	1.44
Li st	4	0.95	0.1739	1.44	2.45	3.90
Li tu	2	0.01	0.0870	0.02	1.23	1.24
Lo ja	3	1.64	0.1304	2.50	1.84	4.34
Lu Al	3	0.39	0.1304	0.60	1.84	2.44
Ly lu	5	0.91	0.2174	1.38	3.07	4.45
Ma vi	2	0.01	0.0870	0.02	1.23	1.24
Mi re	4	0.14	0.1739	0.21	2.45	2.66
Mi sc	2	0.01	0.0870	0.02	1.23	1.24
My ce	4	0.27	0.1739	0.40	2.45	2.86
Os ci	2	0.39	0.0870	0.60	1.23	1.83
Os re	6	10.30	0.2609	15.69	3.68	19.37
Pa qu	4	0.39	0.1739	0.60	2.45	3.05
Pan sp	2	0.82	0.0870	1.25	1.23	2.48
Pe bo	4	0.65	0.1739	0.99	2.45	3.44
Po sp	2	0.01	0.0870	0.02	1.23	1.24
Qu ni	3	0.82	0.1304	1.25	1.84	3.09

Table I 6-1

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: I Micro-plot No.: 23

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Rh gl	2	0.01	0.0870	0.02	1.23	1.24
Ru Sp	6	8.54	0.2609	13.00	3.68	16.68
Sc cy	2	0.14	0.0870	0.21	1.23	1.44
Sm ro	5	7.04	0.2174	10.73	3.07	13.79
Sm sp	1	0.01	0.0435	0.02	0.61	0.63
So sp	2	0.14	0.0870	0.21	1.23	1.44
Th no	3	4.08	0.1304	6.21	1.84	8.06
To ra	5	0.78	0.2174	1.18	3.07	4.25
Unknown 1	2	0.14	0.0870	0.21	1.23	1.44
Unknown 2	2	0.14	0.0870	0.21	1.23	1.44
Unknown grass	4	0.39	0.1739	0.60	2.45	3.05
Vi ro	4	0.14	0.1739	0.21	2.45	2.66
Vi ru	3	0.39	0.1304	0.60	1.84	2.44
Vi sp	5	0.91	0.2174	1.38	3.07	4.45
Wo Ar	7	0.82	0.3043	1.25	4.29	5.54
	52	65.66	7.09	100.00	100.00	200.00

Richness= 23.05 Diversity= 0.92

Table I 6-2

Dames & Moore

IA AREA

IA Area is located south of I Area on Pen Branch and a tributary entering from the north. Beaver dam construction to the northeast of Youman Road has promoted excessive ponding of water. This ponding in turn has caused the vegetation to develop to more of a dense scrub/shrub growth. Other than the beaver dam construction, the area consists of a Palustrine/bottomland hardwood system.

IA Area begins south of Road C and continues south to approximately 2000 feet north of Road 6-4.2 (Figure 7). Youman Road runs parallel to the tributary and crosses Pen Branch approximately 500 feet above the confluence with the tributary. This sampling area is located within the Aiken Plateau subregion of the Upper Coastal Plain province. The elevation of the upper section of IA Area is 200 feet msl and drops to 175 feet msl at the southernmost portion of the sampling area.

Sampling of the vegetation in IA Area was accomplished through nine sampling plots (Figure 7). Youman Road was primarily utilized for access to the sampling area. Other access routes included old logging roads.

There were a total of 82 species documented within the nine sampling plots in IA Area. The species area curve shows adequate sampling of the vegetation in the area after the fifth plot was completed (Table IA-1).

The average canopy height for the overstory in IA Area was 61 feet (Table IA-2).

Overstory Stratum (Table IA-3)

A total of 212 individual specimens were measured representing 14 distinct species in the overstory vegetative stratum of IA Area for a diversity of 0.83. The most dominant species relevant to the importance value was black gum (Nyssa sylvatica) with a value of 71.66. Following black gum, in descending order of importance, were sweet gum (Liquidambar styraciflua) (I.V. = 54.26), red maple (Acer

rubrum) (I.V. = 52.12), yellow poplar (Liriodendron tulipifera) (I.V. = 39.49), and American holly (Ilex opaca) (I.V. = 29.57).

Three species (black gum, red maple, and sweet gum) had nine individuals each appearing in the nine subplots for a relative frequency of 16.98 of the sampled area. These three also had the highest densities (black gum = 23.58; red maple = 21.7; sweet gum = 18.87) within IA Area.

Black gum had the greatest relative dominance with a R.D. of 31.09. Yellow poplar and sweet gum followed with a relative dominance of 22.03 and 18.41, respectively.

Understory Stratum (Table IA-4)

IA Area understory stratum vegetation was a highly diverse (diversity of 0.87) flora with 90 individuals of 18 distinct species being measured within the 18 subplots. Tag alder (Alnus serrulata) had the highest importance value with a value of 55.60. In descending order of importance, tag alder was followed by American holly (I.V. of 50.9), red maple (I.V. of 41.77), and water oak (Quercus nigra) (I.V. of 31.41).

American holly had the highest relative dominance with 16 specimens yielding a total basal area coverage of 331.1 sq cm for a value of 23.13. American holly was followed by tag alder (relative dominance of 17.54), red maple (relative dominance of 16.77), and iron wood (Carpinus caroliniana) (relative dominance of 10.19).

The most frequently occurring species within the 18 sampling plots was red maple with specimens occupying six of the plots for a relative frequency of 15.0 percent. Tag alder had five plot occurrences for a relative frequency of 12.5 and was followed by American holly, water oak, and iron wood with four plot occurrences each. Tag alder had the greatest relative density with a value of 25.56 percent.

Shrub Layer Stratum (Table IA-5)

IA Area shrub layer vegetation recorded an extremely high diversity with a value of 0.93. A total of 488 specimens representing 37 species were measured within the 18 sampled plots. Arrow wood (Viburnum dentatum) represented 70 of the 488 individuals within the area for a relative density of 14.34 percent. Virginia willow (Itea virginica) followed with 58 individuals giving a relative density of 11.89 percent and possumhaw (Viburnum nudum) was third with 52 individuals giving a relative density of 10.66.

Arrow wood was the most frequently occurring species, with 11 occurrences within the sampling plots for a relative frequency of 9.02. Arrow wood was followed by American holly, red maple, Virginia willow, and possumhaw each having specimens in 8 of the 18 plots for a relative frequency of 6.56 percent.

Arrow wood also had the highest value of importance with an I.V. of 40.95. Possumhaw followed with an I.V. of 29.01, then came tag alder (28.86), Virginia willow (24.28), and American holly (19.21).

Relative dominance was highest for arrow wood (17.59) and possumhaw (11.79).

Ground Layer Stratum (Table IA-6)

The diversity for the ground layer stratum in IA Area was an extremely high 0.94 percent. A total of 70 species were identified within the 18 plots conducted. Seven of the species held plot coverages and occurrences significant enough to rank high in the data analyses. The most dominant species was giant bamboo (Arundinaria gigantea) with a relative dominance of 17.93. Poison ivy (Toxicodendron radicans) and bushy seedbox (Ludwigia alternifolia) were second with a relative dominance of 6.13 percent. Climbing hydrangea (Decumaria barbara) was third (relative dominance of

5.0) and netted chain-fern (Woodwardia areolata) was fourth (relative dominance of 4.98).

Red maple, giant bamboo, climbing hempweed (Mikania scandens), and netted chain-fern all occupied nine plots each for a relative frequency of 5.0 percent. Climbing hydrangea occurred in eight plots for a relative frequency of 4.44 percent.

Giant bamboo possessed the greatest importance value with a total of 22.93 of the possible 200 points. Climbing hempweed and netted chain-fern were second with a total of 9.98 points, and climbing hydrangea was third with a total of 9.44 points.

IA AREA

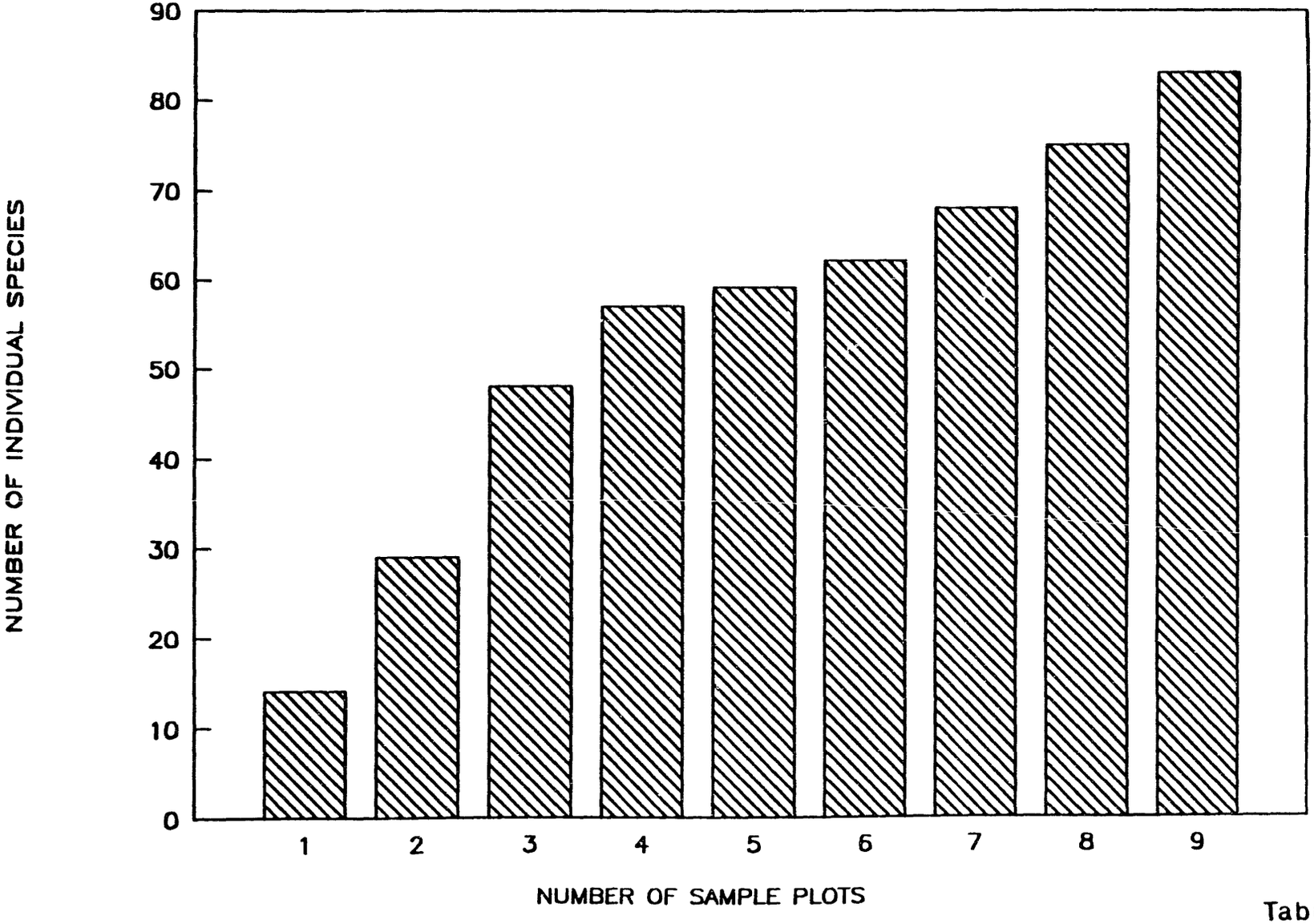


Table IA-1

TABLE IA-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

	Species Name: Il op			Species Name: My sy			Species Name: Ac ru			Species Name: Li st		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	5	33	173.2	9	50	777.3	9	46	365.3	9	40	575.4
total			5714.8			38865.2			16805.4			23016.5
Density	3.67			5.56			5.11			4.44		
Dominance	634.98			4318.36			1867.26			2557.39		
Frequency	0.56			1.00			1.00			1.00		
Rel. Den.	15.57			23.58			21.70			18.87		
Rel. Dom.	4.57			31.09			13.45			18.41		
Rel. Freq	9.43			16.98			16.98			16.98		
Imp. Val.	29.57			71.66			52.12			54.26		

Species Richness= 5.588187 Diversity=0.833497

Table IA 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

Species Name: Ma vi			Species Name: Li tu			Species Name: Ca ca			Species Name: Fr pe		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	153.3	6	13	2118.4	3	8	185.7	3	8	495.7
		153.3			27539.6			1485.2			3965.9
0.11			1.44			0.89			0.89		
17.03			3059.96			165.02			440.66		
0.11			0.67			0.33			0.33		
0.47			6.13			3.77			3.77		
0.12			22.03			1.19			3.17		
1.89			11.32			5.66			5.66		
2.48			39.49			10.62			12.61		

Table IA 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

Species Name: Qu ni			Species Name: Sa ni			Species Name: Qu mi			Species Name: Pi ta		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	7	648.5	1	2	240.4	1	1	248.3	1	1	1641.7
		4539.3			480.9			248.3			1641.7
0.78			0.22			0.11			0.11		
504.37			53.43			27.59			182.41		
0.33			0.11			0.11			0.11		
3.30			0.94			0.47			0.47		
3.63			0.38			0.20			1.31		
5.66			1.89			1.89			1.89		
12.59			3.21			2.56			3.67		

Table IA 3-3

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

Species Name: Al se			Species Name: Qu la				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	14	
1	1	126.7	1	1	410.4	53 2.326335	212 8160.362
		126.7			410.4		124993.1
0.11			0.11				
14.08			45.60				
0.11			0.11			5.888888	
0.47			0.47			100	
0.10			0.33			100	
1.89			1.89			100	
2.46			2.69			300	

Table IA 3-4

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

	Species Name: Il op			Species Name: Ny sy			Species Name: Ac ru			Species Name: Li st		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	5	33	173.2	9	50	777.3	9	46	365.3	9	40	575.4
total			5714.8			38865.2			16805.4			23016.5
Density	3.67			5.56			5.11			4.44		
Dominance	634.98			4318.36			1867.26			2557.39		
Frequency	0.56			1.00			1.00			1.00		
Rel. Den.	15.57			23.58			21.70			18.87		
Rel. Dom.	4.57			31.09			13.45			18.41		
Rel. Freq	9.43			16.98			16.98			16.98		
Imp. Val.	29.57			71.66			52.12			54.26		

Species Richness= 5.588187 Diversity=0.833497

Table IA 3-5

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

Species Name: Ma vi			Species Name: Li tu			Species Name: Ca ca			Species Name: Fr pe		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	153.3	6	13	2118.4	3	8	185.7	3	8	495.7
		153.3			27539.6			1485.2			3965.9
0.11			1.44			0.89			0.89		
17.03			3059.96			165.02			440.66		
0.11			0.67			0.33			0.33		
0.47			6.13			3.77			3.77		
0.12			22.03			1.19			3.17		
1.89			11.32			5.66			5.66		
2.48			39.49			10.62			12.61		

Table IA 3-6

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

Species Name: Qu ni			Species Name: Sa ni			Species Name: Qu mi			Species Name: Pi ta		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	7	648.5	1	2	240.4	1	1	248.3	1	1	1641.7
		4539.3			480.9			248.3			1641.7
0.78			0.22			0.11			0.11		
504.37			53.43			27.59			182.41		
0.33			0.11			0.11			0.11		
3.30			0.94			0.47			0.47		
3.63			0.38			0.20			1.31		
5.66			1.89			1.89			1.89		
12.59			3.21			2.56			3.67		

Table IA 3-7

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 9 Total Subplot Area = 4500.00

Species Name: Al se			Species Name: Qu la				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	1	126.7	1	1	410.4	53 2.326335	212 8160.362
		126.7			410.4		124993.1
0.11			0.11				
14.08			45.60				
0.11			0.11			5.888888	
0.47			0.47			100	
0.10			0.33			100	
1.89			1.89			100	
2.46			2.69			300	

Table IA 3-8

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

	Species Name: Il op			Species Name: Qu ni			Species Name: Ca ca			Species Name: Fr pe		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	4	16	20.7	4	11	12.0	4	5	29.2	3	4	12.6
total			331.1			131.5			145.8			50.5
Density	0.89			0.61			0.28			0.22		
Dominance	18.39			7.31			8.10			2.80		
Frequency	0.22			0.22			0.22			0.17		
Rel. Den.	17.78			12.22			5.56			4.44		
Rel. Dom.	23.13			9.19			10.19			3.53		
Rel. Freq	10.00			10.00			10.00			7.50		
Imp. Val.	50.90			31.41			25.74			15.47		

Species Richness= 8.699022 Diversity=0.875905

Table IA 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Rh sp			Species Name: Ac ru			Species Name: Co am			Species Name: Vi de		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	2	3.3	6	9	26.7	1	2	5.3	1	1	1.8
		6.6			240.0			10.5			1.8
0.11			0.50			0.11			0.06		
0.37			13.33			0.59			0.10		
0.11			0.33			0.06			0.06		
2.22			10.00			2.22			1.11		
0.46			16.77			0.74			0.13		
5.00			15.00			2.50			2.50		
7.68			41.77			5.46			3.74		

Table IA 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Ox ar			Species Name: Li st			Species Name: Al se			Species Name: Vi nu		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	19.4	2	3	28.8	5	23	10.9	1	1	14.6
		38.8			86.4			251.2			14.6
0.11			0.17			1.28			0.06		
2.15			4.80			13.95			0.81		
0.06			0.11			0.28			0.06		
2.22			3.33			25.56			1.11		
2.71			6.04			17.54			1.02		
2.50			5.00			12.50			2.50		
7.43			14.37			55.60			4.63		

Table IA 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Di vi			Species Name: Pe bo			Species Name: Qu ph			Species Name: St am		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	42.6	1	5	10.2	1	1	2.5	1	1	2.5
		42.6			51.1			2.5			2.5
0.06			0.28			0.06			0.06		
2.37			2.84			0.14			0.14		
0.06			0.06			0.06			0.06		
1.11			5.56			1.11			1.11		
2.98			3.57			0.17			0.17		
2.50			2.50			2.50			2.50		
6.59			11.63			3.78			3.78		

Table IA 4-4

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Co st			Species Name: Ny sy			18	
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	2	10.4	1	1	3.2	40 1.954242	90 256.6877
		20.8			3.2		1431.651
0.11			0.06				
1.15			0.18				
0.06			0.06			2.222222	
2.22			1.11			100	
1.45			0.23			100	
2.50			2.50			100	
6.17			3.84			300	

Table IA 4-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

	Species Name: Il op			Species Name: Rh sp			Species Name: To ra			Species Name: Qu ni		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	8	20	1.5	2	11	0.7	4	7	0.2	4	20	0.8
total			29.4			8.0			1.4			15.3
Density	1.11			0.61			0.39			1.11		
Dominance	1.63			0.44			0.08			0.85		
Frequency	0.44			0.11			0.22			0.22		
Rel. Den.	4.10			2.25			1.43			4.10		
Rel. Dom.	8.55			2.33			0.40			4.44		
Rel. Freq	6.56			1.64			3.28			3.28		
Imp. Val.	19.21			6.22			5.11			11.81		

Species Richness= 13.39076 Diversity=0.931573

Table IA 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: It vi			Species Name: Li st			Species Name: Ac ru			Species Name: Vi de		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
8	58	0.3	5	7	0.7	8	23	0.4	11	70	0.9
		20.1			4.7			9.4			60.5
3.22			0.39			1.28			3.89		
1.11			0.26			0.52			3.36		
0.44			0.28			0.44			0.61		
11.89			1.43			4.71			14.34		
5.84			1.37			2.73			17.59		
6.56			4.10			6.56			9.02		
24.28			6.90			14.00			40.95		

Table IA 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Sm la			Species Name: Ca ca			Species Name: Vi nu			Species Name: Qu ly		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	15	0.6 8.9	5	10	0.5 4.6	8	52	0.8 40.5	2	5	0.3 1.4
	0.83			0.56			2.89			0.28	
	0.50			0.25			2.25			0.08	
	0.11			0.28			0.44			0.11	
	3.07			2.05			10.66			1.02	
	2.59			1.33			11.79			0.40	
	1.64			4.10			6.56			1.64	
	7.31			7.47			29.01			3.06	

Table IA 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Pi ta			Species Name: Pe bo			Species Name: Qu la			Species Name: So ar		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	14	0.3	7	21	0.5	4	6	0.4	2	2	0.1
		4.6			9.9			2.6			0.3
0.78			1.17			0.33			0.11		
0.26			0.55			0.14			0.01		
0.06			0.39			0.22			0.11		
2.87			4.30			1.23			0.41		
1.34			2.89			0.75			0.07		
0.82			5.74			3.28			1.64		
5.03			12.93			5.26			2.12		

Table IA 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Va sp			Species Name: Fr pe			Species Name: Ul al			Species Name: Al se		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	5	0.2	4	10	1.3	3	6	1.3	7	48	1.0
		0.8			12.8			7.5			45.7
0.28			0.56			0.33			2.67		
0.05			0.71			0.42			2.54		
0.11			0.22			0.17			0.39		
1.02			2.05			1.23			9.84		
0.24			3.71			2.20			13.28		
1.64			3.28			2.46			5.74		
2.90			9.04			5.88			28.86		

Table IA 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Rh sp			Species Name: Unknown A			Species Name: Li be			Species Name: Ul am		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.5 0.9	1	3	2.8 8.4	2	5	0.5 2.7	1	1	0.2 0.2
	0.11			0.17			0.28			0.06	
	0.05			0.47			0.15			0.01	
	0.06			0.06			0.11			0.06	
	0.41			0.61			1.02			0.20	
	0.27			2.45			0.80			0.06	
	0.82			0.82			1.64			0.82	
	1.49			3.88			3.46			1.08	

Table IA 5-6

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Quercus sp			Species Name: Fr sp			Species Name: Ly lu			Species Name: Ma vi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.2	1	2	0.1	1	13	0.7	1	5	0.9
		0.2			0.3			8.5			4.6
0.06			0.11			0.72			0.28		
0.01			0.01			0.47			0.25		
0.06			0.06			0.06			0.06		
0.20			0.41			2.66			1.02		
0.06			0.07			2.46			1.33		
0.82			0.82			0.82			0.82		
1.08			1.30			5.95			3.17		

Table IA 5-7

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: Sa ca			Species Name: Vi ro			Species Name: Co fo			Species Name: Ny sy		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.2	1	1	0.1	4	10	1.1	3	14	0.6
		0.2			0.1			11.0			8.0
0.06			0.06			0.56			0.78		
0.01			0.00			0.61			0.44		
0.06			0.06			0.22			0.17		
0.20			0.20			2.05			2.87		
0.06			0.01			3.21			2.33		
0.82			0.82			3.28			2.46		
1.08			1.04			8.54			7.66		

Table IA 5-8

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name: St am			Species Name: Am ar			Species Name: Li tu			Species Name: Qu ph		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	14	0.5	1	1	1.8	1	2	0.5	1	1	0.8
		6.9			1.8			0.9			0.8
0.78			0.06			0.11			0.06		
0.38			0.10			0.05			0.05		
0.17			0.06			0.06			0.06		
2.87			0.20			0.41			0.20		
2.00			0.53			0.27			0.24		
2.46			0.82			0.82			0.82		
7.33			1.56			1.49			1.26		

Table IA 5-9

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IA 1-9

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 18 Total Subplot Area = 450.00

Species Name:							
My ce			37				
Plot I.D. #	Diameter (in.)	Basal Area (cm)					
1	2	0.1	122	488	488	24.02327	24.02327
		0.1	122	2.688419	488	343.7503	343.7503
0.11							
0.01							
0.06				6.777777			
0.41				100			
0.03				100			
0.82				100			
1.26				300			

Table IA 5-10

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: IA Micro-plot No.: 18

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	9	1.81	0.5000	1.60	5.00	6.60
Al Se	2	0.34	0.1111	0.30	1.11	1.41
Am Ar	1	0.17	0.0556	0.15	0.56	0.71
An ca	1	0.17	0.0556	0.15	0.56	0.71
Ar gi	9	20.24	0.5000	17.93	5.00	22.93
Ar se	2	0.34	0.1111	0.30	1.11	1.41
Aster sp	1	0.17	0.0556	0.15	0.56	0.71
Bi Fr	1	1.05	0.0556	0.93	0.56	1.48
Bi Sp	1	0.50	0.0556	0.44	0.56	1.00
Bo cy	2	1.21	0.1111	1.07	1.11	2.18
Bo sc	4	1.65	0.2222	1.46	2.22	3.68
Bo Sr	1	0.17	0.0556	0.15	0.56	0.71
Ca Ca	7	3.55	0.3889	3.15	3.89	7.04
Ca jo	1	0.17	0.0556	0.15	0.56	0.71
Car sp	3	1.16	0.1667	1.02	1.67	2.69
Ce Oc	1	0.17	0.0556	0.15	0.56	0.71
Ci ma	1	0.17	0.0556	0.15	0.56	0.71
Co Sp	1	0.17	0.0556	0.15	0.56	0.71
Cy Sp	5	2.35	0.2778	2.09	2.78	4.86
De Ba	8	5.64	0.4444	5.00	4.44	9.44
De Ve	1	0.50	0.0556	0.44	0.56	1.00
Eu Ca	1	0.17	0.0556	0.15	0.56	0.71
Eu pe	3	0.83	0.1667	0.73	1.67	2.40
Fe Pe	2	0.66	0.1111	0.59	1.11	1.70
Ga ap	2	0.66	0.1111	0.59	1.11	1.70
Ga Sp	1	1.05	0.0556	0.93	0.56	1.48
Ga ti	1	0.50	0.0556	0.44	0.56	1.00
Hab sp	4	1.65	0.2222	1.46	2.22	3.68
Hy qu	1	0.17	0.0556	0.15	0.56	0.71
Hy Sp	1	0.17	0.0556	0.15	0.56	0.71
Il Op	2	0.34	0.1111	0.30	1.11	1.41
Im Ca	4	6.41	0.2222	5.68	2.22	7.90
It Vi	5	2.35	0.2778	2.09	2.78	4.86
Ju co	2	2.59	0.1111	2.29	1.11	3.40
Ju Ef	1	0.17	0.0556	0.15	0.56	0.71
La Ca	1	0.17	0.0556	0.15	0.56	0.71
La Sp	2	0.34	0.1111	0.30	1.11	1.41

Table IA 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: IA Micro-plot No.: 18

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Le vi	1	0.50	0.0556	0.44	0.56	1.00
Li st	1	0.17	0.0556	0.15	0.56	0.71
Lo ca	4	0.99	0.2222	0.88	2.22	3.10
Lo ja	4	3.57	0.2222	3.16	2.22	5.38
Lu Al	4	6.92	0.2222	6.13	2.22	8.35
Lu pa	2	0.66	0.1111	0.59	1.11	1.70
Ly lu	3	1.37	0.1667	1.22	1.67	2.88
Ly Ru	2	1.54	0.1111	1.36	1.11	2.47
Ly Sp	3	0.83	0.1667	0.73	1.67	2.40
Mi Al	3	0.50	0.1667	0.44	1.67	2.11
Mi Re	4	1.97	0.2222	1.75	2.22	3.97
Mi sc	9	5.62	0.5000	4.98	5.00	9.98
Mu ke	1	0.17	0.0556	0.15	0.56	0.71
Ny sy	3	1.37	0.1667	1.22	1.67	2.88
On se	1	0.17	0.0556	0.15	0.56	0.71
Os Ci	3	6.25	0.1667	5.53	1.67	7.20
Pa Qu	1	0.17	0.0556	0.15	0.56	0.71
Pe bo	1	0.50	0.0556	0.44	0.56	1.00
Pe vi	1	0.17	0.0556	0.15	0.56	0.71
Qu ni	1	0.17	0.0556	0.15	0.56	0.71
Qu ri	3	0.50	0.1667	0.44	1.67	2.11
Sm le	1	0.17	0.0556	0.15	0.56	0.71
Sm Ro	2	0.99	0.1111	0.88	1.11	1.99
To Ra	4	6.92	0.2222	6.13	2.22	8.35
Tr Wa	1	0.50	0.0556	0.44	0.56	1.00
Ul Al	2	0.34	0.1111	0.30	1.11	1.41
Vi Oe	1	1.05	0.0556	0.93	0.56	1.48
VI Nu	3	0.83	0.1667	0.73	1.67	2.40
Vi Ro	3	0.50	0.1667	0.44	1.67	2.11
Wo Al	1	0.50	0.0556	0.44	0.56	1.00
Wo Ar	9	5.62	0.5000	4.98	5.00	9.98
Unknown C	2	1.21	0.1111	1.07	1.11	2.18
Unknown P	1	0.17	0.0556	0.15	0.56	0.71
	70	112.883666	10	100	100	200

Richness= 30.59 Diversity= 0.94

Table IA 6-2

IB AREA

The section which was designated as IB Area by the SRL Staff has been crossed by several roads and power line rights-of-way. The crossings seem to be well culverted (in one instance the crossing was bridged) and have not altered the water flow extensively. There are a few impacts (e.g., sediment loss, thick successional vegetative growth) on the wetlands on the southeastern portion of Pen Branch (IB Area) due to logging. There is a thick layer of alluvial deposits along the levee of Pen Branch in the lower half of the IB Area. This section of Pen Branch has a high content of tannic acid from the decaying organic matter (i.e., leaves) which causes an orange tint to develop in the water.

IB Area begins south of Road 6-4.2 and traverses Road B, then extends .75 mile south, terminating where Pen Branch begins to flow to the west (Figure 7). This section of Pen Branch is located within the Brandywine Terrace subregion of the Pleistocene Coastal Terraces and ranges from 165 feet msl to 145 feet msl in elevation.

A total of 10 plots were establish and sampled within IB Area (Figure 7). Access routes to the sampling site were by way of Road B, Road 6-4.2, and a unnamed road which joins the power line right-of-way entering from the northeast.

A total of 85 species were measured within the vegetative strata of the 10 plots that were sampled in IB Area. Analysis of the species area curve shows that sampling was sufficient after the fifth sampling plot (Table IB-1).

The average canopy height of the overstory in IB Area was 66 feet (Table IB-2).

Overstory Stratum (Table IB-3)

The overstory vegetation in IB Area yields a diversity of 0.80 for the 10 plots sampled. A total of 230 individual specimens were measured representing the 17 species of the area. The 36 individuals of yellow poplar (Liriodendron tulipifera) combined for a total basal area coverage of 42,711.6 sq cm to give a relative dominance of 27.27 percent of the area sampled. Almost twice (63) the number of black gum (Nyssa sylvatica) specimens were measured to yield a lower basal area coverage of 37,173.0 sq cm. (relative dominance of 23.74). Two other species, red maple (Acer rubrum) (relative dominance of 21.03) and sweet gum (Liquidambar styraciflua) (relative dominance of 18.20) had high basal area coverages.

The highest importance value for IB Area overstory was black gum (I.V. of 68.44). Closely following were red maple (I.V. of 66.34), sweet gum (I.V. of 52.90), and yellow poplar (I.V. of 52.54).

Black gum held the highest relative density with a value of 27.39 percent of the area sampled while red maple held the highest relative frequency with 10 occurrences for a value of 19.23.

Understory Stratum (Table IB-4)

The IB Area understory vegetative stratum was a highly diverse assemblage of vegetation with a diversity of 0.90. A total of 17 species comprised the 54 individuals measured within the 20 subplots in the area. Red maple had the highest importance value with a value of 81.16. Following red maple, in descending order of importance, were arrow wood (Viburnum dentatum) (46.64), water oak (Quercus nigra) (18.92), sweet gum (18.15), box-elder (Acer negundo) (17.89), and winged elm (Ulmus alata) (16.46).

The highest frequency of occurrence was red maple. This species occurred in nine of the 20 plots for a relative frequency of 25.71 percent. The next most

reoccurring species within the sampling plots of IB Area shrub layer were arrow wood, which occupied five plots (relative frequency of 14.29), water oak occupying three plots (relative frequency of 8.57), and three species occupying two of the plots sampled. All other species were found in only one plot.

The most dominant species was red maple with a relative dominance of 35.08 percent. All other species had total basal area coverage of less than 100; therefore, the relative dominance values were significantly lower than red maple.

Arrow wood had a relative density of 22.22 percent and was closely followed by red maple with a relative density of 20.37 percent.

Shrub Layer Stratum (Table IB-5)

A total of 20 subplots were sampled in IB Area for shrub layer vegetation. There were 460 individuals of 41 species recorded for a diversity of 0.89 percent. Ninety-seven of these individuals were recorded from Virginia willow (Itea virginica) for a relative density of 20.64. Arrow wood closely followed with a relative density of 17.87. The highest importance values were recorded for arrow wood, Virginia willow, red maple, and sweet gum.

Virginia willow had a relative frequency of 10.94 percent. Following Virginia willow were arrow wood (relative frequency of 8.59), red bay (Persea borbonia) (relative frequency of 7.81), and American holly (Ilex opaca) and sweet gum, each with a relative frequency of 7.03.

Ground Layer Stratum (Table IB-6)

A total of 62 species occurred within IB Area ground layer for a diversity of 0.94. Poison ivy (Toxicodendron radicans) had the highest importance value for the 20 plots sampled with a value of 19.08. Netted chain-fern (Woodwardia areolata)

followed with an importance value of 18.31 and climbing hydrangea (Decumaria barbara) was third with a value of 13.78.

Poison ivy also had the highest frequency of occurrence with individuals occupying 14 of the 20 plots sampled for a relative frequency of 8.97. Closely following poison ivy was netted chain-fern occurring in 11 plots for a frequency of 7.05. Red maple and climbing hydrangea both were in nine plots and had a relative frequency of 5.77.

Netted chain-fern had the highest relative dominance with a value of 11.26 percent. Following netted chain-fern were poison ivy, an unidentified fern, climbing hydrangea and muscadine (Vitis rotundifolia).

IB AREA

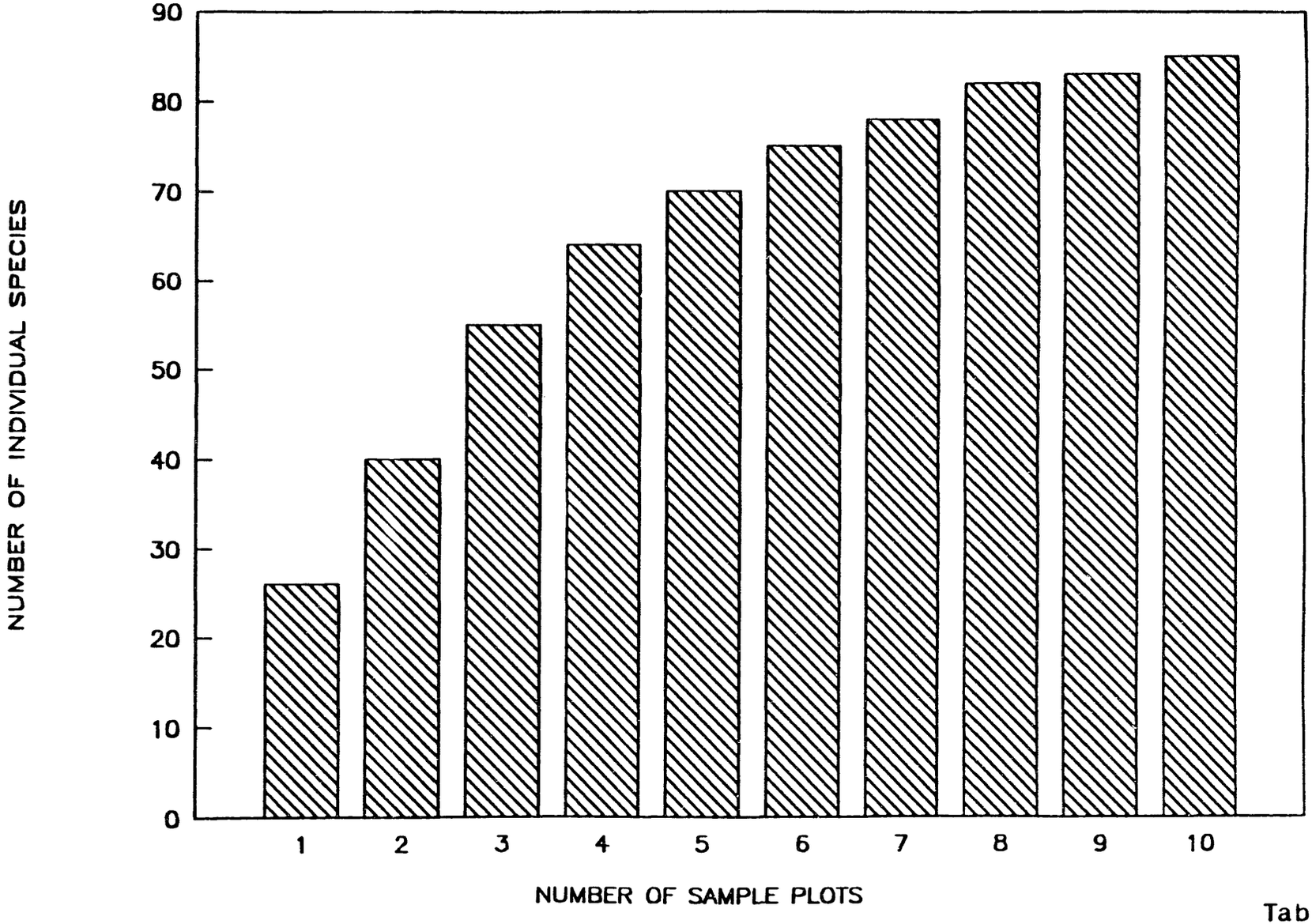


Table IB-1

TABLE IB-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Li st				Species Name: Li tu				Species Name: Ac ru				Species Name: Ny sy			
	Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	9	40	712.6		5	36	1186.4		10	60	548.8		9	63	590.0
total			28503.8				42711.6				32925.8				37173.0
Density	4.00				3.60				6.00				6.30		
Dominance	2850.38				4271.16				3292.58				3717.30		
Frequency	0.90				0.50				1.00				0.90		
Rel. Den.	17.39				15.65				26.09				27.39		
Rel. Dom.	18.20				27.27				21.03				23.74		
Rel. Freq	17.31				9.62				19.23				17.31		
Imp. Val.	52.90				52.54				66.34				68.44		

Species Richness= 6.774701 Diversity=0.803151

Table IB 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Fr pe			Species Name: Qu la			Species Name: Ma vi			Species Name: Il op		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	410.4	1	1	153.3	3	3	173.1	3	9	301.6
		410.4			153.3			519.4			2714.8
0.10			0.10			0.30			0.90		
41.04			15.33			51.94			271.48		
0.10			0.10			0.30			0.30		
0.43			0.43			1.30			3.91		
0.26			0.10			0.33			1.73		
1.92			1.92			5.77			5.77		
2.62			2.46			7.41			11.42		

Table IB 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Pe bo			Species Name: Ny aq			Species Name: Ul al			Species Name: Ce oc		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	102.6	1	4	1433.2	2	2	683.1	1	1	332.5
		205.2			5732.6			1366.2			332.5
0.20			0.40			0.20			0.10		
20.52			573.26			136.62			33.25		
0.10			0.10			0.20			0.10		
0.87			1.74			0.87			0.43		
0.13			3.66			0.87			0.21		
1.92			1.92			3.85			1.92		
2.92			7.32			5.59			2.57		

Table IB 3-3

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Pr se			Species Name: Ce la			Species Name: Qu ni			Species Name: Pl oc		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	182.4	1	1	201.1	1	1	292.7	2	2	1339.6
		182.4			201.1			292.7			2679.2
0.10			0.10			0.10			0.20		
18.24			20.11			29.27			267.92		
0.10			0.10			0.10			0.20		
0.43			0.43			0.43			0.87		
0.12			0.13			0.19			1.71		
1.92			1.92			1.92			3.85		
2.47			2.49			2.54			6.43		

Table IB 3-4

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Ul am				17		
Plot I.D. #	Diameter (in.)	Basal Area (cm)				
1	3	164.7 494.0		52 2.361727	230 8808.094 156597.9	
0.30						
49.40						
0.10				5.2		
1.30				100		
0.32				100		
1.92				100		
3.54				300		

Table IB 3-5

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Ac ru			Species Name: Ny sy			Species Name: Qu ni			Species Name: Al se		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	9	11	26.1	2	3	10.3	3	4	6.0	1	1	11.4
total			287.4			31.0			24.1			11.4
Density	0.55			0.15			0.20			0.05		
Dominance	14.37			1.55			1.21			0.57		
Frequency	0.45			0.10			0.15			0.05		
Rel. Den.	20.37			5.56			7.41			1.85		
Rel. Dom.	35.08			3.78			2.94			1.39		
Rel. Freq	25.71			5.71			8.57			2.86		
Imp. Val.	81.16			15.05			18.92			6.10		

Species Richness= 9.235775 Diversity=0.900069

Table IB 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Be sc			Species Name: Li st			Species Name: Il op			Species Name: Qu la		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	6.1	2	2	35.8	2	3	3.6	1	2	9.4
		6.1			71.5			10.8			18.7
0.05			0.10			0.15			0.10		
0.31			3.58			0.54			0.94		
0.05			0.10			0.10			0.05		
1.85			3.70			5.56			3.70		
0.75			8.73			1.32			2.29		
2.86			5.71			5.71			2.86		
5.46			18.15			12.59			8.85		

Table IB 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Vi nu			Species Name: Ac ne			Species Name: Ul al			Species Name: Pe bo		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	2.5	1	2	46.4	1	3	22.0	1	2	4.6
		2.5			92.8			65.9			9.1
0.05			0.10			0.15			0.10		
0.12			4.64			3.30			0.46		
0.05			0.05			0.05			0.05		
1.85			3.70			5.56			3.70		
0.30			11.33			8.05			1.11		
2.86			2.86			2.86			2.86		
5.01			17.89			16.46			7.67		

Table IB 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Co fl			Species Name: Li tu			Species Name: Vi de			Species Name: Rh sp		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	21.4	2	2	22.8	5	12	6.9	1	2	5.7
		42.8			45.6			83.0			11.4
0.10			0.10			0.60			0.10		
2.14			2.28			4.15			0.57		
0.05			0.10			0.25			0.05		
3.70			3.70			22.22			3.70		
5.23			5.57			10.14			1.39		
2.86			5.71			14.29			2.86		
11.79			14.98			46.64			7.95		

Table IB 4-4

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:						
Ul am				17		
Plot I.D. #	Diameter (in.)	Basal Area (cm)				
1	1	5.1	35	1.732393	54	246.0851
		5.1				819.3966
0.05						
0.25						
0.05				1.75		
1.85				100		
0.62				100		
2.86				100		
5.33				300		

Table IB 4-5

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Ac ru			Species Name: Ul am			Species Name: To ra			Species Name: Li tu		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	8	28	1.4	2	5	0.1	2	2	0.4	3	5	1.4
total			39.2			0.7			0.9			6.8
Density	1.40			0.25			0.10			0.25		
Dominance	1.96			0.04			0.04			0.34		
Frequency	0.40			0.10			0.10			0.15		
Rel. Den.	5.96			1.06			0.43			1.06		
Rel. Dom.	8.19			0.15			0.18			1.42		
Rel. Freq	6.25			1.56			1.56			2.34		
Imp. Val.	20.39			2.77			2.17			4.83		

Species Richness= 14.96951 Diversity=0.896874

Table IB 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Al se			Species Name: Fr pe			Species Name: Ca ra			Species Name: Qu ni		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	6	0.3	2	2	0.5	2	2	0.3	4	8	1.1
		2.0			0.9			0.7			8.6
	0.30			0.10			0.10			0.40	
	0.10			0.05			0.03			0.43	
	0.10			0.10			0.10			0.20	
	1.28			0.43			0.43			1.70	
	0.41			0.19			0.14			1.79	
	1.56			1.56			1.56			3.13	
	3.25			2.18			2.13			6.62	

Table IB 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Di vi			Species Name: Vi de			Species Name: It vi			Species Name: Be sc		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	3	1.5	11	84	1.3	14	97	0.2	1	2	3.8
		4.5			70.2			17.3			7.5
0.15			4.20			4.85			0.10		
0.23			3.51			0.86			0.38		
0.10			0.55			0.70			0.05		
0.64			17.87			20.64			0.43		
0.94			14.67			3.61			1.58		
1.56			8.59			10.94			0.78		
3.14			41.13			35.19			2.78		

Table IB 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Fr sp			Species Name: Ca ca			Species Name: Ny sy			Species Name: Li st		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.2	1	1	0.2	3	4	0.4	9	55	0.8
		0.2			0.2			1.5			41.9
0.05			0.05			0.20			2.75		
0.01			0.01			0.08			2.10		
0.05			0.05			0.15			0.45		
0.21			0.21			0.85			11.70		
0.04			0.04			0.32			8.76		
0.78			0.78			2.34			7.03		
1.04			1.04			3.51			27.49		

Table IB 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Vi nu			Species Name: St am			Species Name: Pe bo			Species Name: Il gl		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	9	0.5 4.3	3	10	0.8 8.2	10	32	0.5 15.1	1	2	0.8 1.6
	0.45			0.50			1.60			0.10	
	0.22			0.41			0.75			0.08	
	0.15			0.15			0.50			0.05	
	1.91			2.13			6.81			0.43	
	0.90			1.70			3.16			0.34	
	2.34			2.34			7.81			0.78	
	5.16			6.18			17.78			1.55	

Table IB 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Ii op			Species Name: So ar			Species Name: Pi ta			Species Name: To ve		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
9	22	1.3	2	4	0.5	2	4	0.2	1	1	0.5
		29.6			2.1			0.8			0.5
		1.10			0.20			0.20			0.05
		1.48			0.11			0.04			0.02
		0.45			0.10			0.10			0.05
		4.68			0.85			0.85			0.21
		6.20			0.44			0.16			0.10
		7.03			1.56			1.56			0.78
		17.91			2.86			2.57			1.09

Table IB 5-6

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Rh sp			Species Name: Ac ne			Species Name: Eu am			Species Name: Unknown A		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	8	0.7	1	1	0.5	1	1	0.1	4	6	30.8
		6.0			0.5			0.1			185.0
0.40			0.05			0.05			0.30		
0.30			0.02			0.00			9.25		
0.10			0.05			0.05			0.20		
1.70			0.21			0.21			1.28		
1.25			0.10			0.01			38.66		
1.56			0.78			0.78			3.13		
4.51			1.09			1.00			43.07		

Table IB 5-7

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Co fl			Species Name: Am ar			Species Name: Pr se			Species Name: Qu sp		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	27	0.3	1	1	0.1	1	1	0.8	3	8	0.3
		8.2			0.1			0.8			2.5
1.35			0.05			0.05			0.40		
0.41			0.00			0.04			0.12		
0.20			0.05			0.05			0.15		
5.74			0.21			0.21			1.70		
1.72			0.01			0.17			0.52		
3.13			0.78			0.78			2.34		
10.59			1.00			1.16			4.56		

Table IB 5-8

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Sa ca			Species Name: Ce oc			Species Name: Qu al			Species Name: Ce la		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	5	0.1	1	2	0.5	2	2	0.3	2	6	0.3
		0.7			1.0			0.7			1.8
0.25			0.10			0.10			0.30		
0.04			0.05			0.03			0.09		
0.05			0.05			0.10			0.10		
1.06			0.43			0.43			1.28		
0.15			0.21			0.14			0.38		
0.78			0.78			1.56			1.56		
1.99			1.42			2.13			3.22		

Table IB 5-9

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Ma vi			Species Name: Sm gl			Species Name: Carya sp			Species Name: Qu la		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	3	1.2	1	1	0.1	1	1	0.2	2	4	0.4
		3.5			0.1			0.2			1.7
0.15			0.05			0.05			0.20		
0.18			0.00			0.01			0.08		
0.10			0.05			0.05			0.10		
0.64			0.21			0.21			0.85		
0.74			0.01			0.04			0.35		
1.56			0.78			0.78			1.56		
2.94			1.00			1.04			2.76		

Table IB 5-10

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: IB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:						
Li si			41			
Plot I.D. #	Diameter (in.)	Basal Area (cm)				
1	4	0.2	125	460	460	54.98043 55.80383
		0.6	128	2.672097	470	475.9503 478.4838
0.20						
0.03						
0.05			6.4			
0.85			100			
0.13			100			
0.78			100			
1.76			300			

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: IB Micro-plot No.: 20

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	9	1.92	0.4500	2.65	5.77	8.42
Al Se	2	0.30	0.1000	0.42	1.28	1.70
Am Ar	2	0.60	0.1000	0.83	1.28	2.11
An Ca	2	0.30	0.1000	0.42	1.28	1.70
Ar Gi	5	3.36	0.2500	4.63	3.21	7.84
Ar Se	1	0.16	0.0500	0.22	0.64	0.86
As sp	1	0.16	0.0500	0.22	0.64	0.86
At As	2	1.09	0.1000	1.50	1.28	2.78
Be Sc	1	0.16	0.0500	0.22	0.64	0.86
Bi Ca	1	0.45	0.0500	0.62	0.64	1.26
Bo cy	1	0.16	0.0500	0.22	0.64	0.86
Bot Sp	1	0.16	0.0500	0.22	0.64	0.86
Ca Ro	1	0.16	0.0500	0.22	0.64	0.86
Car sp	5	2.77	0.2500	3.82	3.21	7.02
Ci Ma	1	0.16	0.0500	0.22	0.64	0.86
Co Fl	1	0.45	0.0500	0.62	0.64	1.26
Co Vi	1	0.45	0.0500	0.62	0.64	1.26
Cy Da	1	0.16	0.0500	0.22	0.64	0.86
Cy Sp	1	0.16	0.0500	0.22	0.64	0.86
De Ba	9	5.81	0.4500	8.01	5.77	13.78
Fr Sp	1	0.16	0.0500	0.22	0.64	0.86
Hab Sp	1	0.16	0.0500	0.22	0.64	0.86
Il Op	2	0.30	0.1000	0.42	1.28	1.70
Im Ca	1	0.16	0.0500	0.22	0.64	0.86
It Vi	5	1.04	0.2500	1.43	3.21	4.64
Li St	3	0.75	0.1500	1.03	1.92	2.95
Lo Ja	5	1.33	0.2500	1.84	3.21	5.05
Ly Ru	1	0.16	0.0500	0.22	0.64	0.86
Ma Vi	1	0.45	0.0500	0.62	0.64	1.26
Mi Re	2	0.30	0.1000	0.42	1.28	1.70
Ny Sy	1	0.16	0.0500	0.22	0.64	0.86
On Se	1	0.16	0.0500	0.22	0.64	0.86
Os Ci	3	4.64	0.1500	6.40	1.92	8.32
Pa Qu	1	0.16	0.0500	0.22	0.64	0.86
Pan sp	4	1.48	0.2000	2.04	2.56	4.61
Pe bo	3	0.75	0.1500	1.03	1.92	2.95
Pi Ta	1	0.16	0.0500	0.22	0.64	0.86

Table IB 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: IB Micro-plot No.: 20

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Po Po	1	0.45	0.0500	0.62	0.64	1.26
Po Sp	1	0.16	0.0500	0.22	0.64	0.86
Qu Sp	1	0.16	0.0500	0.22	0.64	0.86
Rh Sp	1	0.16	0.0500	0.22	0.64	0.86
Ru Sp	5	1.04	0.2500	1.43	3.21	4.64
Sa Ca	2	1.09	0.1000	1.50	1.28	2.78
Sm Gl	2	0.30	0.1000	0.42	1.28	1.70
Sm La	1	0.16	0.0500	0.22	0.64	0.86
Sm Ro	4	1.38	0.2000	1.91	2.56	4.47
To Ra	14	7.33	0.7000	10.11	8.97	19.08
Tr Wa	2	0.30	0.1000	0.42	1.28	1.70
Un Cyperus	1	0.16	0.0500	0.22	0.64	0.86
Unk 1	1	0.16	0.0500	0.22	0.64	0.86
Unk 2	1	0.45	0.0500	0.62	0.64	1.26
Unk 3	1	0.16	0.0500	0.22	0.64	0.86
Unk Fern	4	7.01	0.2000	9.66	2.56	12.23
Unk Poaceae	1	0.16	0.0500	0.22	0.64	0.86
Unknown A	1	1.89	0.0500	2.60	0.64	3.24
Unknown B	2	2.03	0.1000	2.80	1.28	4.09
Unknown grass	2	1.09	0.1000	1.50	1.28	2.78
Vi De	7	1.92	0.3500	2.65	4.49	7.14
Vi nu	1	0.16	0.0500	0.22	0.64	0.86
Vi Ro	4	5.28	0.2000	7.28	2.56	9.84
Vio Sp	1	0.16	0.0500	0.22	0.64	0.86
Wo Ar	11	8.17	0.5500	11.26	7.05	18.31
	62	72.5543266	7.8	100	100	200

Richness= 27.81 Diversity= 0.94

Table IB 6-2

Dames & Moore

KA AREA

KA Area is located on Indian Grove Branch, a 2.5-mile-long tributary to Pen Branch. Indian Grove Branch drainage can be characterized as having steep, incised banks with a flow approximately 15 feet to 20 feet wide. The substantial amount of water flowing in a relatively small drainage area may be indicative of an additional water source for the drainage (possibly an underground water source feeding the tributary).

The sampling plots located on Indian Grove Branch begin approximately 1000 feet north of Road B and extend south to the confluence of Pen Branch (Figure 7). Due to the steep banks within this sampling area, the configuration of the quadrats was sometimes altered to accommodate the floodplain (e.g., a 10 m x 50 m instead of a 20 m x 25 m quadrat). The KA Area is located within the Brandywine terrace of the subregion of the Pleistocene Coastal Terraces. The elevation ranges from 170 feet msl to 135 feet msl from the northernmost plot to the terminal end of the study area at the confluence with Pen Branch.

Twelve plots were sampled within the KA Area (Figure 7). A logging road which runs parallel to Indian Grove Branch between Road B and Road 125 was used to gain access to the sampling sites.

A total of 99 species were identified during the measuring and documenting of the 10 sample plots in KA Area. After the completion of the seventh plot, sampling of the vegetation was complete according to the analysis of the species area curve (Table KA-1).

The average height of the overstory canopy was 62 feet (Table KA-2).

Overstory Stratum (Table KA-3)

A total of 12 plots were sampled in KA Area for vegetation occurring within the overstory stratum. There were 128 specimens of 13 species occurring within the sample plots (diversity of 0.86). The importance value was the greatest for yellow poplar (Liriodendron tulipifera) (I.V. of 71.58). Yellow poplar was followed, in descending order of importance, by black gum (Nyssa sylvatica) (I.V. of 49.92), red maple (Acer rubrum) (I.V. of 43.56), sweet gum (Liquidambar styraciflua) (I.V. of 38.10), and loblolly pine (Pinus taeda) (I.V. of 20.65).

The most dominant species occurring within the sample plots were yellow poplar, with a relative dominance of 37.48, and black gum, with a relative dominance of 15.82. All other species had a relative dominance of less than 12 percent.

Black gum, yellow poplar, and sweet gum each occupied 5 of the 12 plots for a relative frequency of 16.13 percent of the sampled area. Red maple occupied four plots (relative frequency of 12.9) and red bay (Persea borbonia) was measured within three plots (relative frequency of 9.68).

Red maple was the most dense species within the sampling plots with a relative density of 21.09 percent. Following red maple in relative density were black gum and yellow poplar (17.97), sweet gum (12.5), and sycamore (Plantanus occidentalis) (10.94).

Understory Stratum (Table KA-4)

The diversity for KA Area understory vegetation was 0.85. A total of 80 individual specimens, representing 14 species, were measured within the 24 sampling plots. American holly (Ilex opaca) had the highest importance value of the 14 species (I.V. of 62.99). Following American holly were sweet gum (I.V. of 57.68), redbay (I.V. of 41.51), and tag alder (Alnus serrulata) (I.V. of 25.77). American holly also held the greatest density (density of 27.50) for the KA Area understory stratum.

Sweet gum was the most frequently occurring species in the sampling areas with 9 out of 24 plots containing this species (relative frequency of 21.95). The most dominant species was red bay with 11 individuals having a basal area coverage of 411.7 sq cm to give a relative dominance of 20.44 percent.

Shrub Layer Stratum (Table KA-5)

KA Area had a extremely high diversity (diversity of 0.92) for the shrub layer vegetative stratum. A total of 292 specimens representing 27 species were measured for basal area coverage. American holly had the greatest coverage area with 71.5 sq cm yielding a relative dominance of 28.46 percent of the sampled area. The next highest basal area coverage was tag alder with 27.4 sq cm (relative dominance of 10.89). All other species occurring within KA shrub layer stratum had a total basal area coverage of less than 24 sq cm.

Red bay had the greatest relative density with a value of 15.75 and was followed by American holly (relative density of 11.99) and sweet bay (Magnolia virginiana) (relative density of 10.96). Tag alder had the highest relative frequency with seven plot occurrences yielding a value of 10.89

American holly had an importance value of 49.42. Others species with significant importance values were tag alder (I.V. of 29.80) and red bay (I.V. of 29.19).

Ground Layer Stratum (Table KA-6)

KA Area ground layer vegetation had an extremely high diversity of 0.96. A total of 105 species were recorded within the 42 plots that were sampled in the area.

Soft rush (Juncus effusus) had the highest importance value with a value of 17.39. Following soft rush, in descending order of importance, were netted chain-fern

(Woodwardia areolata) (I.V. of 12.4), dogfennel (Eupatorium capillifolium) (I.V. of 8.81), and cutgrass (Leersia sp.) (I.V. of 6.44).

Soft rush had the highest relative dominance with a value of 12.89 and dogfennel had the highest relative frequency at 5.14.

KA AREA

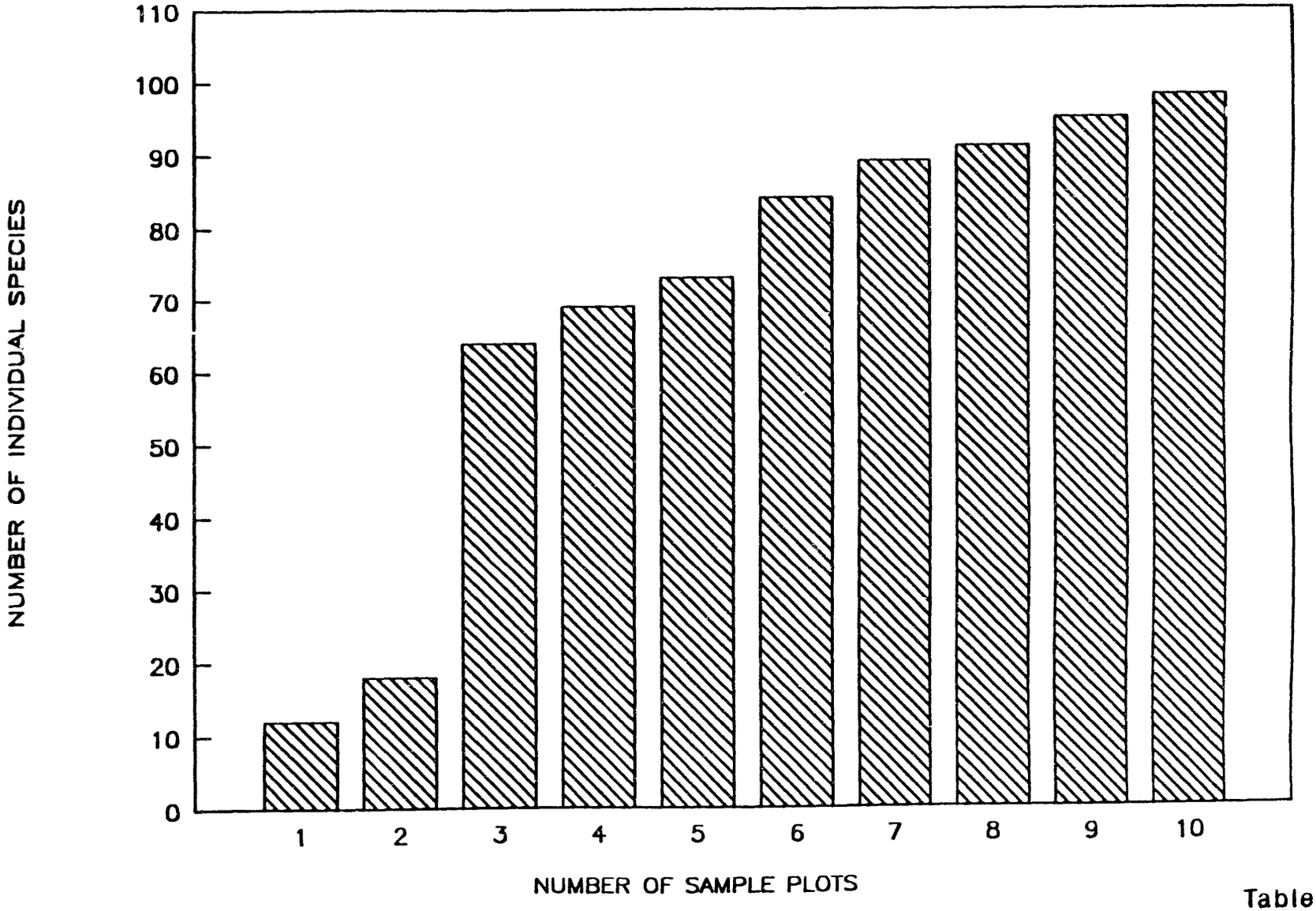


Table KA-1

TABLE KA-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 12 Total Subplot Area = 6000.00

	Species Name: Li st			Species Name: Ny sy			Species Name: Pe bo			Species Name: Li tu		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	5	16	365.6	5	23	424.9	3	7	170.1	5	23	1006.4
total			5849.2			9771.8			1191.0			23146.5
Density	1.33			1.92			0.58			1.92		
Dominance	487.43			814.32			99.25			1928.87		
Frequency	0.42			0.42			0.25			0.42		
Rel. Den.	12.50			17.97			5.47			17.97		
Rel. Dom.	9.47			15.82			1.93			37.48		
Rel. Freq	16.13			16.13			9.68			16.13		
Imp. Val.	38.10			49.92			17.07			71.58		

Species Richness= 5.694733 Diversity=0.862327

Table KA 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 12 Total Subplot Area = 6000.00

Species Name: Pi ta			Species Name: Ac ru			Species Name: Ma vi			Species Name: Il op		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	7	1055.0	4	27	218.7	1	3	200.8	1	1	188.5
		7384.9			5903.9			602.5			188.5
0.58			2.25			0.25			0.08		
615.41			491.99			50.21			15.71		
0.08			0.33			0.08			0.08		
5.47			21.09			2.34			0.78		
11.96			9.56			0.98			0.31		
3.23			12.90			3.23			3.23		
20.65			43.56			6.55			4.31		

Table KA 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 12 Total Subplot Area = 6000.00

Species Name: Pl oc			Species Name: Qu ly			Species Name: Qu ni			Species Name: Qu ph		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	14	414.1	1	1	81.1	1	4	221.4	1	1	869.6
		5796.7			81.1			885.5			869.6
1.17			0.08			0.33			0.08		
483.06			6.76			73.79			72.46		
0.17			0.08			0.08			0.08		
10.94			0.78			3.13			0.78		
9.39			0.13			1.43			1.41		
6.45			3.23			3.23			3.23		
26.78			4.14			7.78			5.42		

Table KA 3-3

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 12 Total Subplot Area = 6000.00

Species Name:				
My ce			13	
Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	1	81.1	31 2.082785	128 5297.100
		81.1		61752.18
0.08				
6.76				
0.08			2.583333	
0.78			100	
0.13			100	
3.23			100	
4.14			300	

Table KA 3-4

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

	Species Name: My ce Common Name:			Species Name: Li st Common Name:			Species Name: Li tu Common Name:			Species Name: Il op Common Name:		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	3	20.0	9	16	19.8	1	2	11.4	7	22	16.9
total			59.9			316.8			22.8			370.9
Density	0.13			0.67			0.08			0.92		
Dominance	2.50			13.20			0.95			15.45		
Frequency	0.13			0.38			0.04			0.29		
Rel. Den.	3.75			20.00			2.50			27.50		
Rel. Dom.	2.97			15.73			1.13			18.42		
Rel. Freq	7.32			21.95			2.44			17.07		
Imp. Val.	14.04			57.68			6.07			62.99		

Species Richness= 6.830995 Diversity=0.856329

Table KA 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Ma vi Common Name:			Species Name: Ny sy Common Name:			Species Name: Pe bo Common Name:			Species Name: Ac ru Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	6	20.6	2	5	34.2	3	11	37.4	3	3	45.8
		123.6			171.2			411.7			137.3
0.25			0.21			0.46			0.13		
5.15			7.13			17.15			5.72		
0.17			0.08			0.13			0.13		
7.50			6.25			13.75			3.75		
6.14			8.50			20.44			6.82		
9.76			4.88			7.32			7.32		
23.39			19.63			41.51			17.89		

Table KA 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Pl oc Common Name:			Species Name: Al se Common Name:			Species Name: Pi ta Common Name:			Species Name: Vi ro Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)
1	1	34.3	4	6	28.6	1	1	5.1	1	1	6.1
		34.3			171.5			5.1			6.1
0.04			0.25			0.04			0.04		
1.43			7.14			0.21			0.26		
0.04			0.17			0.04			0.04		
1.25			7.50			1.25			1.25		
1.70			8.51			0.25			0.30		
2.44			9.76			2.44			2.44		
5.39			25.77			3.94			3.99		

Table KA 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Co fl Common Name:	Species Name: Ca ca Common Name:	14	
Plot I.D. # 1	Diameter (in.) 2	Basal Are (cm) 62.1 124.1	1	1	58.6 58.6	41 1.903089	80 400.7415 2013.832
0.08	0.04		
5.17	2.44		
0.04	0.04	1.708333	
2.50	1.25	100	
6.16	2.91	100	
2.44	2.44	100	
11.10	6.60	300	

Table KA 4-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

	Species Name: Li tu			Species Name: Il op			Species Name: Sm la			Species Name: De ba		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	3	1.0	7	35	2.0	2	17	0.8	1	1	1.8
total			2.9			71.5			14.2			1.8
Density	0.13			1.46			0.71			0.04		
Dominance	0.12			2.98			0.59			0.08		
Frequency	0.13			0.29			0.08			0.04		
Rel. Den.	1.03			11.99			5.82			0.34		
Rel. Dom.	1.15			28.46			5.67			0.73		
Rel. Freq	3.85			8.97			2.56			1.28		
Imp. Val.	6.02			49.42			14.06			2.35		

Species Richness= 10.54602 Diversity=0.918067

Table KA 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Li st				Species Name: Sa ni				Species Name: Am ar				Species Name: It vi			
Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)
8	16		0.6	3	3		0.7	2	4		0.7	2	32		0.4
			10.1				2.2				2.6				13.1
0.67				0.13				0.17				1.33			
0.42				0.09				0.11				0.54			
0.33				0.13				0.08				0.08			
5.48				1.03				1.37				10.96			
4.01				0.87				1.05				5.21			
10.26				3.85				2.56				2.56			
19.75				5.74				4.98				18.73			

Table KA 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Sm ro			Species Name: Vi ro			Species Name: Al se			Species Name: Pl oc		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	2	0.2	4	5	1.6	7	29	0.9	2	13	1.2
		0.4			8.2			27.4			15.1
0.08			0.21			1.21			0.54		
0.02			0.34			1.14			0.63		
0.04			0.17			0.29			0.08		
0.68			1.71			9.93			4.45		
0.16			3.25			10.89			6.00		
1.28			5.13			8.97			2.56		
2.13			10.09			29.80			13.01		

Table KA 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Sa ca			Species Name: Ac ru			Species Name: Ca ca			Species Name: My ce		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	1.3	6	9	0.9	4	12	1.3	3	23	0.8
		1.3			8.1			15.9			18.2
0.04			0.38			0.50			0.96		
0.05			0.34			0.66			0.76		
0.04			0.25			0.17			0.13		
0.34			3.08			4.11			7.88		
0.50			3.21			6.31			7.24		
1.28			7.69			5.13			3.85		
2.13			13.98			15.55			18.97		

Table KA 5-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Ma vi			Species Name: Mi sc			Species Name: Qu al			Species Name: Eu am		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	21	1.1	1	2	0.6	2	3	0.1	1	1	0.8
		23.4			1.3			0.3			0.8
	0.88			0.08			0.13			0.04	
	0.98			0.05			0.01			0.03	
	0.13			0.04			0.08			0.04	
	7.19			0.68			1.03			0.34	
	9.32			0.50			0.12			0.32	
	3.85			1.28			2.56			1.28	
	20.36			2.47			3.71			1.95	

Table KA 5-5

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Pa qu			Species Name: Il de			Species Name: To ve			Species Name: Vi de		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.1	3	7	0.1	1	2	0.1	1	1	0.1
		0.1			1.0			0.1			0.1
	0.04			0.29			0.08			0.04	
	0.00			0.04			0.00			0.00	
	0.04			0.13			0.04			0.04	
	0.34			2.40			0.68			0.34	
	0.02			0.38			0.04			0.02	
	1.28			3.85			1.28			1.28	
	1.64			6.63			2.01			1.64	

Table KA 5-6

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KA 1-12

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 24 Total Subplot Area = 600.00

Species Name: Pi ta			Species Name: Pe bo			Species Name: Il sp				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		27
1	1	0.1	7	46	0.2	1	2	0.1	78 2.465382	292 19.64503
		0.1			11.2			0.2		251.1595
0.04			1.92			0.08				
0.00			0.47			0.01				
0.04			0.29			0.04			3.25	
0.34			15.75			0.68			100	
0.02			4.46			0.08			100	
1.28			8.97			1.28			100	
1.64			29.19			2.05			300	

Table KA 5-7

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KA Micro-plot No.: 42

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ne	1	0.01	0.0238	0.01	0.32	0.33
Ac Ru	9	1.60	0.2143	1.63	2.89	4.52
Al ph	2	0.08	0.0476	0.08	0.64	0.72
Al Se	4	0.80	0.0952	0.82	1.29	2.10
Am ar	3	1.87	0.0714	1.89	0.96	2.86
Am sp	1	0.22	0.0238	0.22	0.32	0.54
An ca	2	0.15	0.0476	0.15	0.64	0.80
Ar Gi	1	1.80	0.0238	1.82	0.32	2.14
As sp	2	1.35	0.0476	1.37	0.64	2.01
Ba Ha	1	0.01	0.0238	0.01	0.32	0.33
Ba sp	1	0.08	0.0238	0.08	0.32	0.40
Bi Fr	1	0.08	0.0238	0.08	0.32	0.40
Bo cy	7	4.16	0.1667	4.22	2.25	6.47
Br ci	3	1.04	0.0714	1.06	0.96	2.02
Ca Ca	1	0.08	0.0238	0.08	0.32	0.40
Ca sp	1	0.01	0.0238	0.01	0.32	0.33
Car sp	4	0.50	0.0952	0.51	1.29	1.79
Ce oc	1	0.08	0.0238	0.08	0.32	0.40
Co Fl	1	0.08	0.0238	0.08	0.32	0.40
Coc ca	1	0.22	0.0238	0.22	0.32	0.54
Cor sp	1	0.01	0.0238	0.01	0.32	0.33
De Ba	5	0.78	0.1190	0.79	1.61	2.40
De Sp	1	0.22	0.0238	0.22	0.32	0.54
De ve	1	0.08	0.0238	0.08	0.32	0.40
Er gi	1	0.01	0.0238	0.01	0.32	0.33
Er hi	8	1.27	0.1905	1.29	2.57	3.86
Eu Ca	16	3.62	0.3810	3.67	5.14	8.81
Eu Sp	1	1.80	0.0238	1.82	0.32	2.14
Eup sp	1	0.90	0.0238	0.92	0.32	1.24
Ge Se	2	0.52	0.0476	0.53	0.64	1.17
Gl sp	2	0.08	0.0476	0.08	0.64	0.72
Go al	1	0.08	0.0238	0.08	0.32	0.40
Hy mu	1	0.08	0.0238	0.08	0.32	0.40
Hy Sp	6	0.43	0.1429	0.44	1.93	2.37
Hy ve	1	0.08	0.0238	0.08	0.32	0.40
Il Op	3	0.59	0.0714	0.60	0.96	1.57
Il vo	1	0.01	0.0238	0.01	0.32	0.33

Table KA 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KA Micro-plot No.: 42

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Im Ca	6	4.14	0.1429	4.20	1.93	6.13
It vi	1	0.08	0.0238	0.08	0.32	0.40
Ju Ef	14	12.72	0.3333	12.89	4.50	17.39
Ju sp	1	0.01	0.0238	0.01	0.32	0.33
Krigia	1	0.08	0.0238	0.08	0.32	0.40
La ca	1	0.45	0.0238	0.46	0.32	0.78
La sp	1	0.90	0.0238	0.92	0.32	1.24
Lamaceae	3	0.73	0.0714	0.74	0.96	1.71
Le oc	1	0.08	0.0238	0.08	0.32	0.40
Le sp	2	0.29	0.0476	0.29	0.64	0.94
Lee sp	6	4.45	0.1429	4.51	1.93	6.44
Lem sp	1	0.22	0.0238	0.22	0.32	0.54
Li tu	3	0.15	0.0714	0.15	0.96	1.12
Lo Ja	3	2.22	0.0714	2.25	0.96	3.21
Lomialeae	1	0.01	0.0238	0.01	0.32	0.33
Lu Al	4	0.29	0.0952	0.29	1.29	1.58
Lu sp	2	0.29	0.0476	0.29	0.64	0.94
Ly Lu	3	0.36	0.0714	0.37	0.96	1.33
Ma Vi	2	0.66	0.0476	0.67	0.64	1.32
Mi re	3	0.73	0.0714	0.74	0.96	1.71
Mi sc	6	2.52	0.1429	2.55	1.93	4.48
My Ce	4	0.66	0.0952	0.67	1.29	1.96
My he	2	0.43	0.0476	0.44	0.64	1.08
Ox sp	1	0.01	0.0238	0.01	0.32	0.33
Pa Qu	2	0.29	0.0476	0.29	0.64	0.94
Pa ve	4	0.94	0.0952	0.96	1.29	2.24
Pan sp	8	1.53	0.1905	1.55	2.57	4.12
Pan sp #6	1	0.08	0.0238	0.08	0.32	0.40
Pe bo	2	0.45	0.0476	0.46	0.64	1.10
Pe vi	3	2.31	0.0714	2.34	0.96	3.31
Pi pu	3	2.31	0.0714	2.34	0.96	3.31
Pi Ta	4	0.22	0.0952	0.22	1.29	1.51
Pl oc	10	2.21	0.2381	2.24	3.22	5.46
Po Au	1	0.01	0.0238	0.01	0.32	0.33
Po Pu	1	0.22	0.0238	0.22	0.32	0.54
Po Sa	3	0.29	0.0714	0.29	0.96	1.26
Qu ni	1	0.08	0.0238	0.08	0.32	0.40
Ru Sp	6	1.53	0.1429	1.56	1.93	3.49

Table KA 6-2

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KA Micro-plot No.: 42

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Sa mi	1	0.08	0.0238	0.08	0.32	0.40
Sa ni	11	1.06	0.2619	1.08	3.54	4.61
Sc cy	5	2.45	0.1190	2.48	1.61	4.09
Sm La	1	0.08	0.0238	0.08	0.32	0.40
Sm Spp	2	0.29	0.0476	0.29	0.64	0.94
So gi	4	1.25	0.0952	1.27	1.29	2.56
Ta di	1	0.08	0.0238	0.08	0.32	0.40
Tra sp	5	1.01	0.1190	1.03	1.61	2.64
Vy La	1	0.08	0.0238	0.08	0.32	0.40
Unknown 1	5	0.87	0.1190	0.89	1.61	2.49
Urknown 2	3	0.50	0.0714	0.51	0.96	1.47
Unknown 3	2	0.29	0.0476	0.29	0.64	0.94
Unknown 4	5	0.78	0.1190	0.79	1.61	2.40
Unknown 5	3	0.73	0.0714	0.74	0.96	1.71
Unknown 6	4	0.94	0.0952	0.96	1.29	2.24
Unknown 7	2	0.97	0.0476	0.99	0.64	1.63
Unknown 8	3	0.36	0.0714	0.37	0.96	1.33
Unknown 9	2	0.52	0.0476	0.53	0.64	1.17
Unknown a	2	0.90	0.0476	0.91	0.64	1.55
Unknown b	1	1.80	0.0238	1.82	0.32	2.14
Unknown c	1	0.08	0.0238	0.08	0.32	0.40
Unknown d	3	1.42	0.0714	1.44	0.96	2.40
Unknown grass 1	3	0.73	0.0714	0.74	0.96	1.71
Unknown grass 3	2	0.66	0.0476	0.67	0.64	1.32
Unknown grass 8	2	0.43	0.0476	0.44	0.64	1.08
Urtica	1	0.90	0.0238	0.92	0.32	1.24
Vi De	1	0.08	0.0238	0.08	0.32	0.40
Vi Ro	3	0.73	0.0714	0.74	0.96	1.71
Vio sp	1	0.01	0.0238	0.01	0.32	0.33
Wo Ar	11	8.75	0.2619	8.87	3.54	12.40
	105	98.63	7.40	100.00	100.00	200.00

Richness= 41.72 Diversity= 0.96

Table KA 6-3

Dames & Moore

BELT TRANSE
Plot Size =
Sp
My
Co
Pl
I.
count/avg
total
Density
Dominance
Frequency
Rel. Den.
Rel. Dom.
Rel. Freq
Imp. Val.
Species Rich

KB AREA

KB Area begins in a section of Pen Branch that may be characterized as similar to KA Area. For approximately 1 mile, the sampling area has steep banks leading down to the floodplain of the creek. From this point, the topography surrounding Pen Branch flattens out. Due to the flat terrain, the surface runoff contributing to Pen Branch flows as wide sheets of water rather than being confined to small intermittent tributaries. One plot held little water during sampling; however, upon returning to that area following an overnight rain, the ground throughout the area was inundated with approximately 10 inches of water.

KB Area begins approximately 100 feet north of Road 125 (A) and extends for approximately 3 miles south just beyond a western turn in Pen Branch (Figure 7). This sampling area is located with the Sunderland Terrace subregion of the Pleistocene Coastal Terraces and ranges in elevation from 135 feet to 115 feet msl.

There were 10 plots sampled in KB Area (Figure 7). Road 125 (A), Road A-13.1, and several logging roads off Road A-15 were used to access the area for sampling.

A total of 88 species were recorded in the 10 plots sampled in KB Area. Analysis of the species area curve shows that sampling of the vegetation was sufficient after the completion of the third plot (Table KB-1). Although new species were recorded, the change was not significant enough to dominance and diversity to justify further sampling of the vegetation.

The average canopy height of the overstory vegetation was 70 feet (Table KB-2).

BELT TR
Plot S
Species
Na vi
Common
Plot
I.D. #
0.2
5.1
0.1
7.5
6.1
9.7
23.3

Overstory Stratum (Table KB-3)

The overstory vegetation for KB Area had a diversity of 0.80 with eight species occurring within the 10 sampled plots. Twenty-three of the 66 individuals measured within the plots were red maples (Acer rubrum), yielding a density of 34.85 for that species. Black gum (Nyssa sylvatica) had 14 individuals (density of 21.21) and yellow poplar (Liriodendron tulipifera) had 11 individuals (density of 16.67) occurring in the plot. Ash (Fraxinus sp.), with only 6 individuals, had a total basal area coverage of 14,650.4 sq cm for a relative dominance of 32.81 percent. Black gum occupied 10,254.4 sq cm of the sampling plots for a relative dominance of 22.95 and yellow poplar had 9,244.1 sq cm of basal area coverage for a relative dominance of 20.70 percent.

Yellow poplar, red maple, and sweet gum (Liquidambar styraciflua) all occurred in 3 of the 10 sampling plots for a relative frequency of 20.00. Black gum occurred twice for a relative frequency of 13.33 percent. All other species were found in only one plot.

Of the possible 300 points for the importance values, red maple had the highest tally with 70.58. Black gum was next with 57.49 points and was closely followed by yellow poplar with 57.37 points. Other importance values worth mentioning were ash (48.57) and sweet gum (32.17).

Understory Stratum (Table KB-4)

KB Area was moderately diverse (diversity of 0.67) in its vascular flora with 126 specimens of 15 species being measured within the 20 subplots. Wax myrtle (Myrica cerifera) was the dominant species represented within the area with a relative dominance of 65.89 percent. The next highest relative dominance was 14.65 for the species of red maple. All other species had a relative dominance of less than 6 percent.

Wax myrtle had the highest importance value for the area with a value of 149.23 points of the possible 300. Following wax myrtle was black willow (Salix nigra) with 16.60 points, tag alder (Alnus serrulata) (15.83), and sweet gum (13.47).

Wax myrtle also had the greatest relative frequency with specimens being measured in half the number of plots (relative frequency of 28.57. Red maple occurred in six of the sampling plots for a relative frequency of 17.14 and black willow was found in four plots for a relative frequency of 11.43. The highest relative density was wax myrtle with a value of 54.76 percent.

Shrub Layer Stratum (Table KB-5)

There were 20 plots sampled for shrub layer vegetation within KB Area for a moderate diversity of 0.51. A total of 554 individuals representing only nine species were measured for basal area coverage. The 375 specimens of the black willow yielded a total basal area coverage of 98.4 sq cm for a relative dominance of 35.66. Wax myrtle covered 79.2 sq cm (relative dominance of 28.72) while the 49 individuals of tag alder combined for a basal coverage of 45.4 (relative dominance of 16.45).

Black willow, red maple, and wax myrtle all occurred within 7 of the 20 sampling plots for a frequency of 17.95 percent. There were five in which sweet gum occurred and four plot occurrences of yellow poplar. Density was the greatest for black willow with a value of 67.69.

Black willow had the highest importance value with a value of 121.3. Following black willow, in descending order of importance, were wax myrtle (59.84), tag alder (38.12), red maple (29.61), and sweet gum (16.22).

Ground Cover Stratum (Table KB-6)

KB Area ground cover stratum had an extremely high diverse flora within the 41 plots sampled with a diversity of 0.95. There were a total of 101 species found to occur within these sample plots.

The highest importance value was obtained by false nettle (Boehermia cylindrica) with an importance value of 17.51. Woolgrass (Scirpus cylindrica) was next with an I.V. of 14.22, followed by spotted touch-me-not (Impaciens capensis) (12.62), climbing hempweed (Mikania scandens) (10.49), and marsh dewflower (Murdannia keisak) (10.45).

False nettle had the greatest relative frequency with 24 occurrences yielding a value of 7.59 percent. Climbing hempweed followed with a relative frequency of 6.01 percent. Woolgrass was third with a relative frequency of 4.11.

Woolgrass had the highest relative dominance with a value of 10.11 percent of the area sampled. Following woolgrass were false nettle (relative dominance 9.92), spotted touch-me-not (relative dominance of 9.45), and marsh dewflower (relative dominance of 8.23).

KB AREA

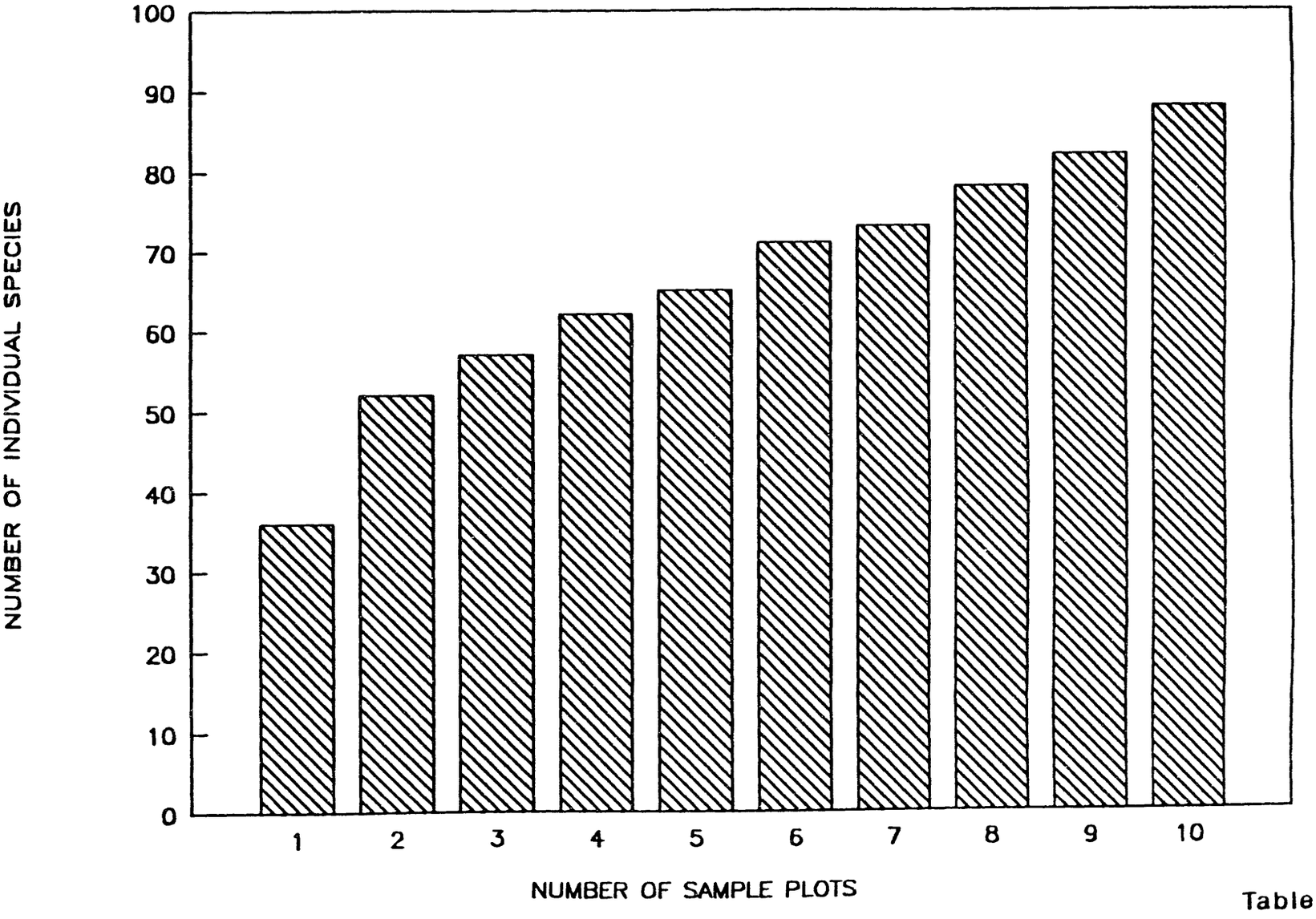


Table KB-1

TABLE KB-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

	Species Name: Li tu Common Name:			Species Name: Ny sy Common Name:			Species Name: Ac ru Common Name:			Species Name: Ma vi Common Name:		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	11	840.4	2	14	731.8	3	23	305.3	1	3	234.4
total			9244.1			10245.4			7022.3			703.3
Density	1.10			1.40			2.30			0.30		
Dominance	924.41			1024.54			702.23			70.33		
Frequency	0.30			0.20			0.30			0.10		
Rel. Den.	16.67			21.21			34.85			4.55		
Rel. Dom.	20.70			22.95			15.73			1.58		
Rel. Freq	20.00			13.33			20.00			6.67		
Imp. Val.	57.37			57.49			70.58			12.79		

Species Richness= 3.847117 Diversity=0.798135

Table KB 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Li st Common Name:			Species Name: Fr sp Common Name:			Species Name: Ul am Common Name:			Species Name: Sa ni Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	6	229.0	1	6	2441.7	1	1	81.1	1	2	662.9
		1374.3			14650.4			81.1			1325.8
0.60			0.60			0.10			0.20		
137.43			1465.04			8.11			132.58		
0.30			0.10			0.10			0.10		
9.09			9.09			1.52			3.03		
3.08			32.81			0.18			2.97		
20.00			6.67			6.67			6.67		
32.17			48.57			8.36			12.67		

Table KB 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

	8		
15	1.819543	66	5526.698
			44646.65
	1.5		
	100		
	100		
	100		
	300		

Table KB 3-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Al se Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Hi mi Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ac ru Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: My ce Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	2	11	3.1	1	1	1.3	6	19	19.0	10	69	23.6
total			34.2			1.3			361.3			1625.3
Density	0.55			0.05			0.95			3.45		
Dominance	1.71			0.06			18.06			81.27		
Frequency	0.10			0.05			0.30			0.50		
Rel. Den.	8.73			0.79			15.08			54.76		
Rel. Dom.	1.38			0.05			14.65			65.89		
Rel. Freq	5.71			2.86			17.14			28.57		
Imp. Val.	15.83			3.70			46.87			149.23		

Species Richness= 6.665490 Diversity=0.669079

Table KB 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Sa ni Common Name:			Species Name: Be ni Common Name:			Species Name: Qu la Common Name:			Species Name: Pe bo Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
4	5	5.9	1	1	2.5	2	3	23.7	1	1	11.4
		29.7			2.5			71.2			11.4
0.25			0.05			0.15			0.05		
1.49			0.12			3.56			0.57		
0.20			0.05			0.10			0.05		
3.97			0.79			2.38			0.79		
1.21			0.10			2.89			0.46		
11.43			2.86			5.71			2.86		
16.60			3.75			10.98			4.11		

Table KB 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Il op Common Name:			Species Name: Ce oc Common Name:			Species Name: Co fo Common Name:			Species Name: Li st Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	48.7	1	1	14.6	1	5	6.8	2	5	18.7
		48.7			14.6			34.0			93.5
0.05			0.05			0.25			0.25		
2.43			0.73			1.70			4.67		
0.05			0.05			0.05			0.10		
0.79			0.79			3.97			3.97		
1.97			0.59			1.38			3.79		
2.86			2.86			2.86			5.71		
5.62			4.24			8.20			13.47		

Table KB 4-3

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Ul am Common Name:			Species Name: Pl oc Common Name:			Species Name: Cary sp Common Name:			15	
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	2	62.1	1	1	6.1	1	1	8.6	35 2.100370	126 256.1577
		124.2			6.1			8.6		2466.601
0.10			0.05			0.05				
6.21			0.31			0.43				
0.05			0.05			0.05			1.7	
1.59			0.79			0.79			100	
5.04			0.25			0.35			100	
2.86			2.86			2.86			100	
9.48			3.90			4.00			300	

Table KB 4-4

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Al se Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Sa ni Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ac ru Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ny sy Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	5	49	0.9	7	375	0.3	7	22	1.0	1	6	1.4
total			45.4			98.4			21.2			8.7
Density	2.45			18.75			1.10			0.30		
Dominance	2.27			4.92			1.06			0.43		
Frequency	0.25			0.35			0.35			0.05		
Rel. Den.	8.84			67.69			3.97			1.08		
Rel. Dom.	16.45			35.66			7.69			3.14		
Rel. Freq	12.82			17.95			17.95			2.56		
Imp. Val.	38.12			121.30			29.61			6.79		

Species Richness= 2.915972 Diversity=0.515011

Table KB 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Ce oc Common Name:			Species Name: Li st Common Name:			Species Name: It vi Common Name:			Species Name: Hi mi Common Name:		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	8	0.9	4	12	0.9	3	7	0.6	3	2	0.6
		7.2			10.5			4.1			1.3
0.40			0.60			0.35			0.10		
0.36			0.52			0.20			0.06		
0.10			0.20			0.15			0.15		
1.44			2.17			1.26			0.36		
2.61			3.80			1.47			0.46		
5.13			10.26			7.69			7.69		
9.18			16.22			10.42			8.51		

Table KB 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KB 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:				
My ce			9	
Common Name:				
Plot I.D. #	Diameter (in.)	Basal Area (cm)		
7	73	1.1	39 2.743509	554 7.669679
		79.2		275.9528
3.65				
3.96				
0.35			1.95	
13.18			100	
28.72			100	
17.95			100	
59.84			300	

Table KB 5-3

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KB Micro-plot No.: 41

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	12	1.16	0.2927	1.33	3.80	5.13
Ag Pu	2	1.00	0.0488	1.15	0.63	1.78
Al Se	4	0.44	0.0976	0.51	1.27	1.77
Am Ar	1	0.08	0.0244	0.09	0.32	0.41
An Vi	3	0.61	0.0732	0.70	0.95	1.65
Ap Am	1	0.08	0.0244	0.09	0.32	0.41
As sp	1	0.08	0.0244	0.09	0.32	0.41
At as	1	0.08	0.0244	0.09	0.32	0.41
Bi Sp	1	0.08	0.0244	0.09	0.32	0.41
Bo cy	24	8.62	0.5854	9.92	7.59	17.51
Bu spp	1	0.23	0.0244	0.26	0.32	0.58
Ca ra	1	0.08	0.0244	0.09	0.32	0.41
Car sp	3	1.21	0.0732	1.40	0.95	2.35
Ce Oc	1	0.08	0.0244	0.09	0.32	0.41
Ci Ma	2	0.54	0.0488	0.62	0.63	1.25
Cy da	2	0.30	0.0488	0.34	0.63	0.97
Cy sp	3	0.23	0.0732	0.26	0.95	1.21
Ec Al	1	0.08	0.0244	0.09	0.32	0.41
Ec Cr	1	0.08	0.0244	0.09	0.32	0.41
Ele Sp	1	0.08	0.0244	0.09	0.32	0.41
Er Gi	5	1.36	0.1220	1.56	1.58	3.14
Er He	1	0.23	0.0244	0.26	0.32	0.58
Er Hi	10	1.54	0.2439	1.77	3.16	4.94
Eu Ca	9	1.88	0.2195	2.17	2.85	5.01
Eu sp.	1	0.23	0.0244	0.26	0.32	0.58
Eup sp	2	0.15	0.0488	0.18	0.63	0.81
Ga sp	1	0.08	0.0244	0.09	0.32	0.41
Ge Se	3	0.75	0.0732	0.87	0.95	1.81
Ha Re	2	0.15	0.0488	0.18	0.63	0.81
Hi Ho	1	0.08	0.0244	0.09	0.32	0.41
Hy Mu	8	0.73	0.1951	0.84	2.53	3.37
Hy Sp	2	0.68	0.0488	0.78	0.63	1.42
Hy ve	1	0.08	0.0244	0.09	0.32	0.41
Il gl	1	0.08	0.0244	0.09	0.32	0.41
Im Ca	10	8.21	0.2439	9.45	3.16	12.62
It Vi	3	0.61	0.0732	0.70	0.95	1.65
Ju Ef	12	4.52	0.2927	5.20	3.80	9.00
Le ax	2	2.29	0.0488	2.64	0.63	3.27
Le Or	3	0.37	0.0732	0.42	0.95	1.37
Le sp	7	5.40	0.1707	6.21	2.22	8.43
Li st	1	0.08	0.0244	0.09	0.32	0.41
Li Tu	1	0.08	0.0244	0.09	0.32	0.41

Table KB 6-1

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KB Micro-plot No.: 41

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Lu Al	4	0.58	0.0976	0.67	1.27	1.94
Lu De	2	0.15	0.0488	0.18	0.63	0.81
Lu le	1	0.23	0.0244	0.26	0.32	0.58
Lu sp	1	0.08	0.0244	0.09	0.32	0.41
Ly Ru	1	0.08	0.0244	0.09	0.32	0.41
Lyc sp	1	0.08	0.0244	0.09	0.32	0.41
Mi Al	1	0.08	0.0244	0.09	0.32	0.41
Mi re	2	0.30	0.0488	0.34	0.63	0.97
Mi sc	19	3.89	0.4634	4.48	6.01	10.49
Mu Ke	7	7.15	0.1707	8.23	2.22	10.45
My Br	1	0.08	0.0244	0.09	0.32	0.41
My Ce	5	0.51	0.1220	0.59	1.58	2.17
Na Of	1	0.23	0.0244	0.26	0.32	0.58
Ol Un	2	0.15	0.0488	0.18	0.63	0.81
On se	1	0.08	0.0244	0.09	0.32	0.41
Os ci	1	0.08	0.0244	0.09	0.32	0.41
Osspvb	1	0.08	0.0244	0.09	0.32	0.41
Ox Sp	2	0.15	0.0488	0.18	0.63	0.81
Pa ri	3	2.97	0.0732	3.42	0.95	4.37
Pa Ur	5	2.36	0.1220	2.72	1.58	4.30
Pa ve	3	0.37	0.0732	0.42	0.95	1.37
Pan sp	5	1.13	0.1220	1.31	1.58	2.89
Pe bo	1	0.08	0.0244	0.09	0.32	0.41
Pe vi	1	0.08	0.0244	0.09	0.32	0.41
Pi ta	1	0.08	0.0244	0.09	0.32	0.41
Pl ca	1	0.08	0.0244	0.09	0.32	0.41
Po Hy	7	1.09	0.1707	1.25	2.22	3.47
Po Pr	2	0.15	0.0488	0.18	0.63	0.81
Po pu	5	0.90	0.1220	1.03	1.58	2.61
Po Sa	3	0.37	0.0732	0.42	0.95	1.37
Po sp	1	0.08	0.0244	0.09	0.32	0.41
Qu La	1	0.23	0.0244	0.26	0.32	0.58
Rh Sp	2	0.15	0.0488	0.18	0.63	0.81
Ru Sp	9	1.85	0.2195	2.13	2.85	4.98
Sa ni	8	0.73	0.1951	0.84	2.53	3.37
Sag Sp	1	0.08	0.0244	0.09	0.32	0.41
Sc cy	13	8.78	0.3171	10.11	4.11	14.22
Se sp	2	0.15	0.0488	0.18	0.63	0.81
Sm La	1	0.08	0.0244	0.09	0.32	0.41
Sm sp	1	0.08	0.0244	0.09	0.32	0.41
So Gi	4	0.97	0.0976	1.11	1.27	2.38
Sol sp	1	0.93	0.0244	1.07	0.32	1.38
Sp ze	1	0.08	0.0244	0.09	0.32	0.41

Table KB 6-2

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KB Micro-plot No.: 41

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
To ra	4	0.73	0.0976	0.84	1.27	2.10
Tr sp	1	0.23	0.0244	0.26	0.32	0.58
Tr Wa	4	0.30	0.0976	0.34	1.27	1.61
Unknown 1	1	0.23	0.0244	0.26	0.32	0.58
Unknown 2	1	0.23	0.0244	0.26	0.32	0.58
Unknown A	1	0.08	0.0244	0.09	0.32	0.41
Unknown B	3	0.75	0.0732	0.87	0.95	1.81
Unknown C	1	0.08	0.0244	0.09	0.32	0.41
Unknown D	1	0.08	0.0244	0.09	0.32	0.41
Unknown E	1	0.08	0.0244	0.09	0.32	0.41
Unknown F	1	0.23	0.0244	0.26	0.32	0.58
Unknown grass	6	0.97	0.1463	1.11	1.90	3.01
Vi nu	1	0.08	0.0244	0.09	0.32	0.41
Vi ro	1	0.08	0.0244	0.09	0.32	0.41
Wo Ar	1	0.08	0.0244	0.09	0.32	0.41
Xy Sp	1	0.08	0.0244	0.09	0.32	0.41
	101	86.89	7.71	100.00	100.00	200.00
	Richness=	40.01		Diversity=	0.95	

Table KB 6-3

KC AREA

KC Area is dominated by scrub/shrub growth and has a series of braided streams which run parallel to Pen Branch. Within the braided streams are many islands on which thrive thick masses of ground cover vegetation (Persistent emergent). Non-persistent emergent vegetation also is well represented in the area.

KC Area is located on Pen Branch beginning south of Road A-13.2 (Risher Pond Road) and extending for approximately .75 mile south (Figure 7). This sampling area is located within the Sunderland Terrace subregion of the Pleistocene Coastal Terraces. This stretch of Pen Branch drops only 10 feet in elevation through the sampling area, beginning at 100 feet msl in elevation and dropping to 90 feet msl at the southern most plot.

Ten plots were sampled within KC Area (Figure 7). Hog Barn Road running parallel enabled easy access to most of the sites on the west side of Pen Branch while an unnamed side road off Road A-17 (visible on aerial photography) was used to access the east side of Pen Branch.

A total of 76 species were documented while sampling the vegetational strata in the 10 plots of KC Area (Table KC-1). The species area curve shows sampling to be sufficient after the fifth plot.

The average canopy height for the 10 plots in the KC Area overstory was 64 feet (Table KC-2).

Overstory Stratum (Table KC-3)

The overstory vegetation in the KC sampling area was moderately diverse (diversity of 0.79) with 54 measured specimens representing seven species. Sweet gum (Liquidambar styraciflua) and black gum (Nyssa sylvatica) each had 16 individuals occurring within the 10 plots sampled for a relative density of 29.63. The most

dominant species was black gum (relative dominance 37.24) with a basal area coverage of 9466.4 sq cm.

Sweet gum had the highest importance value (I.V. = 78.63) and was closely followed by black gum (I.V. = 77.98). Two species, red maple (Acer rubrum) and sweet gum, occurred in two of the 10 plots sampled for a relative frequency of 22.22. The remaining species, of which there were five, had a relative frequency of 11.11.

Understory Stratum (Table KC-4)

A total of 20 plots were sampled within KC Area for understory vegetation. These 20 plots held 84 individuals that met the criterion as understory vegetation. A total of nine species occurred within this area, yielding a diversity of 0.61. The dominant species, according to the importance value, was black willow (Salix nigra) with a value of 148.60 of the possible 300 points. Following black willow, from highest to lowest value, was black gum (I.V. of 34.38), tag alder (Alnus serrulata) (I.V. of 33.85), buttonbush (Cephalanthus occidentalis) (I.V. of 21.42), and American holly (Ilex opaca) (I.V. of 20.94).

The species with the highest frequency of occurrence within KC Area was black willow with a relative frequency of 38.10. Tag alder had a relative frequency of 14.29 and three other species had a relative frequency of 9.52.

Black willow had the greatest relative density (60.71) and relative dominance (49.79) with tag alder following in relative density (10.71) and black gum following in relative dominance (18.91).

Shrub Layer Stratum (Table KC-5)

The diversity for KC Area shrub layer was 0.80 with 171 individual specimens of 13 species being measured. Black willow had the greatest importance value for the

area with an I.V. of 84.42. Black willow was followed by tag alder (I.V. of 57.92), buttonbush (I.V. of 50.80), and sweet bay (Magnolia virginiana) (I.V. of 36.41).

Tag alder held the greatest percent of relative frequency with specimens occurring in 8 of the 20 subplots for a frequency of 22.86. Following tag alder were black willow and buttonbush with relative frequencies of 17.14 percent.

Black willow was the dominant species with 60 individuals having a total basal average of 61.3 sq cm and yielding a relative dominance of 33.19. Buttonbush had 27 individuals with a basal average of 33.0 sq cm and a relative dominance of 17.87 while tag alder had 30 individuals with a basal average of 32.3 and a closely following relative dominance of 17.54.

The density for black willow was 35.09 and was followed by buttonbush (15.79) and tag alder (17.54).

Ground Cover Stratum (KC-5)

A total of 44 plots were sampled for ground cover vegetation in KC Area. There were 78 species documented within the area for a diversity of 0.89. False nettle (Boehermia cylindrica) was the dominant species in measures of relative dominance (25.68) and relative frequency (12.66) for the highest measurement of importance (I.V. of 38.34). Fireweed (Erechtites hieracifolia) had the next highest importance value with a total of 12.68 points. The second highest relative dominance was recorded for woolgrass (Scirpus cylindrica) with a value of 14.40. Two species, fireweed and woolgrass, were second in relative frequency with a value of 6.82.

KC AREA

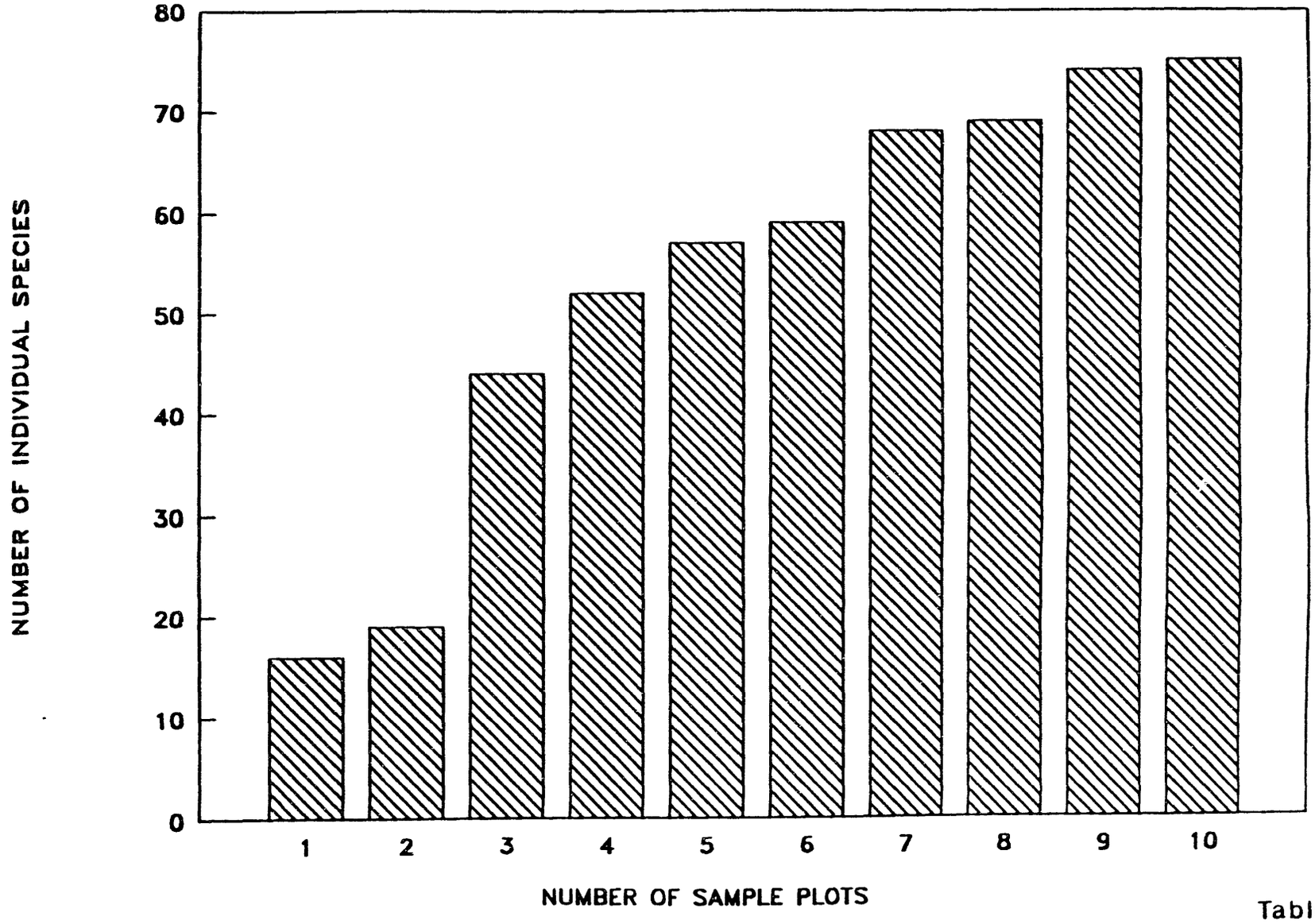


Table KC-1

TABLE KC-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

	Species Name: Li st			Species Name: Sa ni			Species Name: Ac ru			Species Name: Pi ta		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	2	16	425.4	1	5	479.3	2	7	575.2	1	1	516.9
total			6806.6			2396.6			4026.4			516.9
Density	1.60			0.50			0.70			0.10		
Dominance	680.66			239.66			402.64			51.69		
Frequency	0.20			0.10			0.20			0.10		
Rel. Den.	29.63			9.26			12.96			1.85		
Rel. Dom.	26.78			9.43			15.84			2.03		
Rel. Freq	22.22			11.11			22.22			11.11		
Imp. Val.	78.63			29.80			51.03			15.00		

Species Richness= 3.463415 Diversity=0.791055

Table KC 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

Species Name: Fr pe			Species Name: Il op			Species Name: Ny sy				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		7
1	8	260.0	1	1	126.7	1	16	591.7	9 1.732393	54 2975.153
		2080.0			126.7			9466.4		25419.60
0.80			0.10			1.60				
208.00			12.67			946.64				
0.10			0.10			0.10				0.9
14.81			1.85			29.63				100
8.18			0.50			37.24				100
11.11			11.11			11.11				100
34.11			13.46			77.98				300

Table KC 3-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Sa ni				Species Name: My ce				Species Name: Ce oc				Species Name: My sy			
Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)	Plot I.D. #	Diameter (in.)		Basal Area (cm)
count/avg	8	51	8.2		1	6	7.4		2	5	10.0		2	5	31.7
total			417.5				44.3				49.8				158.5
Density	2.55				0.30				0.25				0.25		
Dominance	20.88				2.22				2.49				7.93		
Frequency	0.40				0.05				0.10				0.10		
Rel. Den.	60.71				7.14				5.95				5.95		
Rel. Dom.	49.79				5.29				5.94				18.91		
Rel. Freq	38.10				4.76				9.52				9.52		
Imp. Val.	148.60				17.19				21.42				34.38		

Species Richness= 4.157400 Diversity=0.612449

Table KC 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Il op			Species Name: Li st			Species Name: Co st			Species Name: Al se		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	3	21.9	1	1	2.5	1	2	3.7	3	9	8.2
		65.8			2.5			7.3			74.2
0.15			0.05			0.10			0.45		
3.29			0.12			0.37			3.71		
0.10			0.05			0.05			0.15		
3.57			1.19			2.38			10.71		
7.85			0.30			0.88			8.85		
9.52			4.76			4.76			14.29		
20.94			6.25			8.02			33.85		

Table KC 4-2

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:					
Ma vi				9	
Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	2	9.2	21	1.924279	84 102.8419
		18.5			838.5861
0.10					
0.92					
0.05				1.05	
2.38				100	
2.21				100	
4.76				100	
9.35				300	

Table KC 4-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Al se			Species Name: Li st			Species Name: It vi			Species Name: Ac ru		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	8	30	1.1	3	14	0.4	1	6	0.3	1	1	2.5
total			32.3			5.9			2.0			2.5
Density	1.50			0.70			0.30			0.05		
Dominance	1.62			0.29			0.10			0.12		
Frequency	0.40			0.15			0.05			0.05		
Rel. Den.	17.54			8.19			3.51			0.58		
Rel. Dom.	17.52			3.18			1.07			1.34		
Rel. Freq	22.86			8.57			2.86			2.86		
Imp. Val.	57.92			19.94			7.44			4.79		

Species Richness= 5.373945 Diversity=0.802820

Table KC 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Sa ni			Species Name: My ce			Species Name: Ce oc			Species Name: My sy		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
6	60	1.0	1	3	3.8	6	27	1.2	1	1	1.3
		61.3			11.4			33.0			1.3
3.00			0.15			1.35			0.05		
3.06			0.57			1.65			0.06		
0.30			0.05			0.30			0.05		
35.09			1.75			15.79			0.58		
33.19			6.18			17.87			0.69		
17.14			2.86			17.14			2.86		
85.42			10.79			50.80			4.13		

Table KC 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Fr pe			Species Name: Il op			Species Name: Ma vi			Species Name: Unknown a		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)	Plot I.D. #	Diameter (in.)	Basal Are (cm)
1	1	0.8	1	1	2.5	4	20	1.2	1	5	1.3
		0.8			2.5			24.5			6.3
0.05			0.05			1.00			0.25		
0.04			0.12			1.23			0.32		
0.05			0.05			0.20			0.05		
0.58			0.58			11.70			2.92		
0.44			1.34			13.29			3.43		
2.86			2.86			11.43			2.86		
3.88			4.79			36.41			9.21		

Table KC 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KC 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:		
Unknown shrub	13	
Plot I.D. # Diameter (in.)	Basal Are (cm)	
1 2	0.4	35 2.232996 171 17.83702
	0.9	184.6006
0.10		
0.04		
0.05	1.75	
1.17	100	
0.47	100	
2.86	100	
4.49	300	

Table KC 5-4

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KC Micro-plot No.: 44

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	8	2.11	0.1818	2.09	2.60	4.69
Al Se	1	0.86	0.0227	0.85	0.32	1.18
Am Ar	2	0.86	0.0455	0.85	0.65	1.50
Ar gi	1	0.08	0.0227	0.08	0.32	0.40
Bi fr	3	0.34	0.0682	0.34	0.97	1.31
Bi Sp	2	0.01	0.0455	0.01	0.65	0.66
Bo cy	39	26.00	0.8864	25.68	12.66	38.34
Ca ro	1	0.08	0.0227	0.08	0.32	0.40
Car sp	1	0.43	0.0227	0.43	0.32	0.75
Ce Oc	4	1.29	0.0909	1.27	1.30	2.57
Ci Ma	2	0.01	0.0455	0.01	0.65	0.66
Cy sp	2	0.01	0.0455	0.01	0.65	0.66
De ba	2	0.08	0.0455	0.08	0.65	0.73
Di sp	1	0.01	0.0227	0.01	0.32	0.33
Ec al	1	0.01	0.0227	0.01	0.32	0.33
Er hi	21	5.93	0.4773	5.86	6.82	12.68
Eu Ca	13	6.00	0.2955	5.93	4.22	10.15
Eu sp	4	0.14	0.0909	0.14	1.30	1.44
Ga ob	1	0.01	0.0227	0.01	0.32	0.33
Ga ti	5	0.14	0.1136	0.14	1.62	1.77
Gl sp	1	0.43	0.0227	0.43	0.32	0.75
Hy mu	4	0.14	0.0909	0.14	1.30	1.44
Hy qu	1	0.08	0.0227	0.08	0.32	0.40
Hy Sp	4	0.41	0.0909	0.41	1.30	1.71
Hy ve	2	0.08	0.0455	0.08	0.65	0.73
Im Ca	10	3.79	0.2273	3.75	3.25	6.99
Ju ef	12	6.26	0.2727	6.18	3.90	10.08
Le Cu	1	0.08	0.0227	0.08	0.32	0.40
Le or	8	2.32	0.1818	2.29	2.60	4.89
Lu Al	2	0.08	0.0455	0.08	0.65	0.73
Lu le	3	0.01	0.0682	0.01	0.97	0.98
Lu sp	3	0.21	0.0682	0.21	0.97	1.18
Li st	1	0.08	0.0227	0.08	0.32	0.40
Ma vi	3	2.34	0.0682	2.31	0.97	3.28
Mi sc	17	2.13	0.3864	2.10	5.52	7.62
Mi re	1	0.08	0.0227	0.08	0.32	0.40
Mu ke	3	0.43	0.0682	0.43	0.97	1.40

Table KC 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KC Micro-plot No.: 44

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
My ce	1	0.01	0.0227	0.01	0.32	0.33
Na Sp	1	0.01	0.0227	0.01	0.32	0.33
On se	2	0.43	0.0455	0.43	0.65	1.08
Pa Fl	4	0.48	0.0909	0.47	1.30	1.77
Pa sp	4	1.55	0.0909	1.54	1.30	2.83
Pi Ta	1	0.01	0.0227	0.01	0.32	0.33
Po hy	10	0.08	0.2273	0.08	3.25	3.32
Po Pu	2	1.29	0.0455	1.27	0.65	1.92
Po Sa	1	0.08	0.0227	0.08	0.32	0.40
Po sp	2	0.08	0.0455	0.08	0.65	0.73
Po sp 1	1	0.08	0.0227	0.08	0.32	0.40
Po sp 2	1	0.01	0.0227	0.01	0.32	0.33
Qu ni	1	0.08	0.0227	0.08	0.32	0.40
Ru Sp	5	1.19	0.1136	1.18	1.62	2.80
Sa ce	1	0.21	0.0227	0.21	0.32	0.53
Sag sp	1	0.43	0.0227	0.43	0.32	0.75
Sa la	2	0.21	0.0455	0.21	0.65	0.86
Sa ni	14	1.97	0.3182	1.95	4.55	6.49
Sc cy	21	14.58	0.4773	14.40	6.82	21.22
So la	6	0.28	0.1364	0.27	1.95	2.22
Sc sp	1	0.08	0.0227	0.08	0.32	0.40
Sab ca	2	0.21	0.0455	0.21	0.65	0.86
Sm la	1	0.08	0.0227	0.08	0.32	0.40
So gi	1	0.01	0.0227	0.01	0.32	0.33
So sp	2	0.41	0.0455	0.41	0.65	1.06
Qu ph	1	0.08	0.0227	0.08	0.32	0.40
Tr Wa	9	2.67	0.2045	2.64	2.92	5.56
Tr sp	1	0.08	0.0227	0.08	0.32	0.40
Ty La	1	1.71	0.0227	1.69	0.32	2.02
Unknown grass	4	3.91	0.0909	3.86	1.30	5.16
Unknown vine	1	0.86	0.0227	0.85	0.32	1.18
Unknown A	1	0.08	0.0227	0.08	0.32	0.40
Unknown B	1	0.01	0.0227	0.01	0.32	0.33
Unknown C	1	0.08	0.0227	0.08	0.32	0.40
Unknown D	1	1.71	0.0227	1.69	0.32	2.02
Unknown E	1	0.08	0.0227	0.08	0.32	0.40
Unknown F	2	1.71	0.0455	1.69	0.65	2.34
Unknown G	1	0.43	0.0227	0.43	0.32	0.75
Va sp	1	0.08	0.0227	0.08	0.32	0.40
Unknown H	1	0.21	0.0227	0.21	0.32	0.53
Wo Ar	3	0.34	0.0682	0.34	0.97	1.31
	78	101.23	7.00	100.00	100.00	200.00
	Richness=	30.94		Diversity=	0.89	

Table KC 6-2

Dames & Moore

KD AREA

KD Area is similar to KC Area in vegetative growth due to the braided streams/ islands occurring within the broad floodplain of the flat topography. Many dead trees occupy the lower section of KD Area (delta region of Pen Branch) and woody debris from a previously forested area is scattered throughout the sampling site. The loss of the overstory has resulted in a thick scrub/shrub and persistent emergent growth which required the use of machetes to establish the linear transects for the vegetative sampling.

KD Area begins adjacent to KC Area to the north and extends down into the marsh of the Savannah River floodplain for approximately 500 feet (Figure 7). The six plots on the west side of Pen Branch were measured with a car odometer and spaced approximately 1.5 miles apart. An unnamed road off of Hog Barn Road was used to access the west side. The remaining four plots were located along previously established survey transects on the east side Pen Branch.

KD Area is located in the Sunderland Terrace subregion of the Pleistocene Coastal Terraces. Elevation ranges from 85 feet msl to 80 feet msl. There were a total of 10 plots sampled within this area (Figure 7).

There were a total of 61 species sampled from KD Area. Sampling of the vegetation was shown to be sufficient by the species area curve after the fifth plot (Table KD-1).

Overstory Stratum

No overstory vegetation was measured within KD Area. All sampling plots were located in the wide floodplain of the lower section of Pen Branch. The area once was well forested; however, it now contains many dead snags of black gum (Nyssa sp.) and bald cypress (Taxodium distichum).

Understory Stratum (KD-2)

Only five distinct species comprised the 123 specimens measured within the 20 plots of KD Area understory sampling stratum. The diversity for this area was a low 0.44.

Black willow (Salix nigra) was the dominant species in reference to importance value with a total tally of 213.51 out of a possible 300 points. This dominance of the importance value was due to the high values for relative frequency, relative dominance, and relative density. Black willow had 13 specimens being measured for a total basal area coverage of 415.3 sq cm (relative dominance of 79.25). There were 13 plots in which this species occurred for a relative frequency of 61.90. The relative density for black willow was 72.36.

Buttonbush (Cephalanthus occidentalis) had the next highest importance value with a value of 41.56 and also ranked second in frequency with four plot occurrences for a relative frequency of 19.05. Loblolly pine (Pinus taeda) was second in relative density with one specimen having a total basal area coverage of 51.9 sq cm for a value of 9.90.

Shrub Layer Stratum (Table KD-3)

The shrub layer vegetative stratum in KD Area held a total of 279 measured specimens of 12 individual species. The area was moderately diverse in the shrub layer flora with a diversity of 0.74. Black willow dominated the stratum in all categories of analysis by having 124 individuals occurring in 15 of the 20 plots sampled. The relative dominance for black willow was 83.18 percent, much higher than the next highest measurement of relative dominance. Black willow also had the greatest percent of relative frequency (relative frequency of 44.12) and density (density of 44.44) in the sampling area.

The importance value for KD Area was highest for black willow (importance value of 171.74 of a possible 300 percent). Another importance value worth mentioning is buttonbush with a value of 36.95 percent.

The dominance of black willow within this area shows its opportunistic ability of colonizing a disturbed wetland. This thick growth of black willow was also noted within creek floodplains that have been cleared for utility crossings along Pen Branch and Four Mile Creek. The crossings constitute high disturbance due to the total clearing of the vegetation and leaving for successional stages to develop.

Ground Layer Stratum (Table KD-4)

The ground layer stratum for KD Area held a very diverse flora for the 50 subplots sampled (diversity of 0.92). False nettle (Boehermia cylindrica) occurred in 43 of the plots for a relative frequency of 12.39, a relative dominance of 20.92, and a overall importance value of 33.31. Fireweed (Erechtites hieracifolia) followed with a total of 31 plot occurrence for a relative frequency of 8.93, a relative dominance of 10.39, and an importance value of 19.32. The third highest in all categories was dogfennel (Eupatorium capillifolium) by occupying 26 plots and having a relative frequency of 7.49, a relative dominance of 8.19, and an importance value of 15.69.

KD AREA

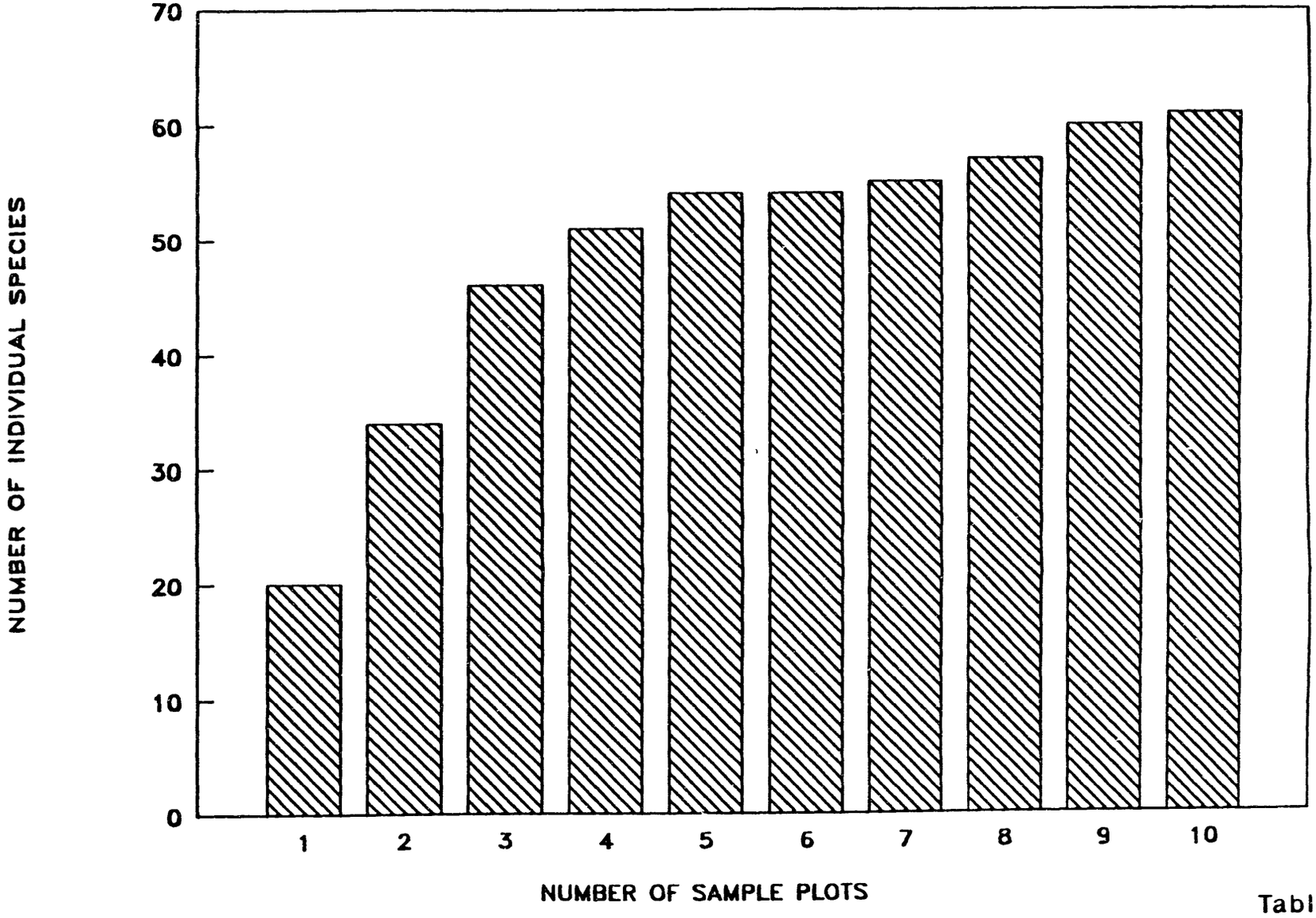


Table KD-1

TABLE KD-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KD 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Sa ni			Species Name: Ny sy			Species Name: Ce oc			Species Name: Sa la		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	13	89	4.7	2	11	0.9	4	18	2.3	1	4	1.5
total			415.3			9.6			41.3			5.9
Density	4.45			0.55			0.90			0.20		
Dominance	20.77			0.48			2.06			0.30		
Frequency	0.65			0.10			0.20			0.05		
Rel. Den.	72.36			8.94			14.63			3.25		
Rel. Dom.	79.25			1.84			7.88			1.13		
Rel. Freq	61.90			9.52			19.05			4.76		
Imp. Val.	213.51			20.30			41.56			9.15		

Species Richness= 1.913962 Diversity= 0.449553

Table KD 2-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KD 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:					
Pi ta				5	
Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	1	51.9	21	2.089905	123 61.20527
		51.9			524.0875
0.05					
2.59					
0.05				1.05	
0.81				100	
9.90				100	
4.76				100	
15.48				300	

Table KD 2-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KD 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Bo cy				Species Name: Ny sy				Species Name: Ce oc				Species Name: Li st			
Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)
count/avg	2	51	0.3		1	6	0.1		6	29	1.0		1	2	0.3
total			17.2				0.8				29.7				0.7
Density	2.55				0.30				1.45				0.10		
Dominance	0.86				0.04				1.49				0.03		
Frequency	0.10				0.05				0.30				0.05		
Rel. Den.	18.28				2.15				10.39				0.72		
Rel. Dom.	5.16				0.23				8.91				0.20		
Rel. Freq	5.88				2.94				17.65				2.94		
Imp. Val.	29.32				5.32				36.95				3.86		

Species Richness= 4.497866 Diversity=0.739846

Table KD 3-1

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KD 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Unknown A			Species Name: Sa ni			Species Name: Ru sp			Species Name: Bi sp		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.1	15	124	2.2	1	1	0.8	1	4	0.2
		0.1			277.6			0.8			0.8
0.05			6.20			0.05			0.20		
0.00			13.88			0.04			0.04		
0.05			0.75			0.05			0.05		
0.36			44.44			0.36			1.43		
0.02			83.18			0.24			0.23		
2.94			44.12			2.94			2.94		
3.31			171.74			3.54			4.60		

Table KD 3-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KD 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name: Eu ca			Species Name: Sc cy			Species Name: My ce			Species Name: Er hi		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	20	0.1	2	34	0.1	1	4	0.1	1	3	0.2
		1.0			4.3			0.4			0.5
1.00			1.70			0.20			0.15		
0.05			0.22			0.02			0.02		
0.10			0.10			0.05			0.05		
7.17			12.19			1.43			1.08		
0.30			1.29			0.11			0.14		
5.88			5.88			2.94			2.94		
13.35			19.36			4.48			4.15		

Table KD 3-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KD 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	12			
	34	2.445604	279	5.527442
				333.7175
	1.7			
	100			
	100			
	100			
	300			

Table KD 3-4

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KD Micro-plot No.: 50

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	3	0.19	0.0600	0.17	0.86	1.03
Al Ph	3	0.62	0.0600	0.56	0.86	1.43
Ba Ha	1	0.19	0.0200	0.17	0.29	0.46
Bl Di	3	0.07	0.0600	0.06	0.86	0.93
Bi Fr	5	1.74	0.1000	1.59	1.44	3.03
Bo cy	43	22.95	0.8600	20.92	12.39	33.31
Car sp	7	1.35	0.1400	1.23	2.02	3.25
Ce Oc	4	0.25	0.0800	0.22	1.15	1.38
Ci Ma	3	0.30	0.0600	0.28	0.86	1.14
Cy Sp	13	1.50	0.2600	1.37	3.75	5.12
Di Sa	5	1.09	0.1000	0.99	1.44	2.43
Ec sp	3	1.69	0.0600	1.54	0.86	2.40
Er Ca	1	0.07	0.0200	0.06	0.29	0.35
Er Hi	31	11.40	0.6200	10.39	8.93	19.32
Eu Ca	26	8.99	0.5200	8.19	7.49	15.69
Eu Sp	3	0.88	0.0600	0.80	0.86	1.67
Ga ti	2	0.07	0.0400	0.06	0.58	0.64
Hy Mu	1	0.07	0.0200	0.06	0.29	0.35
Hy Sp	1	0.19	0.0200	0.17	0.29	0.46
Im Ca	5	0.87	0.1000	0.80	1.44	2.24
Ju Ef	4	0.36	0.0800	0.33	1.15	1.48
Ju Sp	3	1.63	0.0600	1.48	0.86	2.35
Le or	1	0.01	0.0200	0.01	0.29	0.30
Le sp	5	1.35	0.1000	1.23	1.44	2.67
Li St	1	0.07	0.0200	0.06	0.29	0.35
Lu De	3	0.13	0.0600	0.12	0.86	0.98
Lu Le	3	0.30	0.0600	0.28	0.86	1.14
Lu sp	4	3.24	0.0800	2.96	1.15	4.11
Ly Ru	2	0.19	0.0400	0.17	0.58	0.75
Mi sc	21	5.08	0.4200	4.63	6.05	10.68
Mu Ke	4	2.06	0.0800	1.88	1.15	3.03
My Ce	3	0.74	0.0600	0.67	0.86	1.54
Ny Sy	1	0.19	0.0200	0.17	0.29	0.46

Table KD 4-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KD Micro-plot No.: 50

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
On Se	1	0.07	0.0200	0.06	0.29	0.35
Os Re	1	0.76	0.0200	0.69	0.29	0.98
Pa Fl	1	0.76	0.0200	0.69	0.29	0.98
Pa Ur	12	5.67	0.2400	5.17	3.46	8.62
Pa Ve	5	4.94	0.1000	4.50	1.44	5.94
Pan sp	3	0.88	0.0600	0.80	0.86	1.67
Po au	1	0.07	0.0200	0.06	0.29	0.35
Po Hy	11	1.38	0.2200	1.26	3.17	4.43
Po Pu	20	3.49	0.4000	3.19	5.76	8.95
Rh Co	2	0.36	0.0400	0.33	0.58	0.91
Rh sp	1	0.01	0.0200	0.01	0.29	0.30
Ru Sp	3	1.00	0.0600	0.91	0.86	1.77
Sa La	3	0.30	0.0600	0.28	0.86	1.14
Sa ni	19	6.75	0.3800	6.15	5.48	11.63
Sa Sp	2	0.36	0.0400	0.33	0.58	0.91
Sc cy	21	7.40	0.4200	6.75	6.05	12.80
So Gi	1	0.01	0.0200	0.01	0.29	0.30
Tr sp	1	0.07	0.0200	0.06	0.29	0.35
Tr Wa	6	0.68	0.1200	0.62	1.73	2.35
Ty La	2	1.69	0.0400	1.54	0.58	2.11
Unknown A	1	0.76	0.0200	0.69	0.29	0.98
Unknown B	2	0.13	0.0400	0.12	0.58	0.69
Unknown D	1	0.07	0.0200	0.06	0.29	0.35
Unknown E	1	0.38	0.0200	0.35	0.29	0.64
Unknown F	2	0.36	0.0400	0.33	0.58	0.91
Unknown G	1	0.19	0.0200	0.17	0.29	0.46
Unknown Grass 1	1	0.38	0.0200	0.35	0.29	0.64
Unknown Grass 2	1	0.07	0.0200	0.06	0.29	0.35
Unknown Grass 3	1	0.07	0.0200	0.06	0.29	0.35
Unknown H	1	0.76	0.0200	0.69	0.29	0.98
Vin sp	1	0.07	0.0200	0.06	0.29	0.35
	64	109.69	6.94	100	100	200
	Richness=	24.80		Diversity=	0.92	

Table KD 4-2

KE AREA

KE Area is located within the delta region of the confluence of Pen Branch and the Savannah River floodplain. The area is dominated by persistent and nonpersistent vegetation with a soft substrate that is inundated with water. Located to the east of KE Area is a boardwalk constructed and used by the Savannah River Ecology Lab (SREL) for research within the marsh. Little shrub and understory vegetation was observed in the area and no overstory stratum was sampled.

KE Area is merely an extension of KD Area into the delta. The area is located within parts of the Sunderland Terrace and Wicomico Terrace subregions of the Pleistocene Coastal Terraces. The elevation of the sampling area is approximately 80 feet msl. There were four plots sampled within the study site (Figure 7).

A total of 31 plant species were documented within the Pen Branch delta region of the Savannah River swamp (KE Area) (Table KE-1). According to the species area curve, more sampling is required to establish the diversity of the area; however, sampling was discontinued after the fourth plot due to there being a previously assigned number of transects for KE Area.

Overstory Stratum

There were no overstory vegetation occurring within the KE sampling area.

Understory Stratum (KE-2)

Only one individual occurred in KE Area which met the criterion for understory stratum vegetation. The species, wax myrtle (Myrica cerifera), had a basal area of 18.3 sq cm. No other calculations could be made due to the absence of comparable data.

Shrub Layer Stratum (Table KE-3)

The shrub layer vegetation for KE Area consisted of 15 individual specimens representing three species for a diversity of 0.68. The three species occurring within the area were: black willow (Salix nigra); buttonbush (Cephalanthus occidentalis); and wax myrtle. The highest importance value was recorded for black willow with a value of 130.34 and was followed by buttonbush (92.47) and then wax myrtle (77.19).

Buttonbush had the highest relative frequency (50.0) for KE shrub layer. Black willow had the greatest density for the area (density of 46.67) while both wax myrtle and buttonbush had a density of 26.67 percent of the sampling area.

Black willow, based on relative dominance, was the most dominant of the three species with a dominance value of 50.34. Wax myrtle was next dominance value of 33.86, followed by buttonbush at 116.67.

As with KD Area, KE Area has had unnatural disturbances to the area due to the loss of the overstory. Also, additional sediment dumping in the delta region from increase sediment loss upstream has been a factor which may alter the vegetation. Once again, black willow appears to be better suited to colonize the disturbed area.

Ground Cover Stratum (Table KE-4)

A total of 20 plots were sampled in the KE Area, which had a diversity of 0.89. There were 34 species measured within this area.

Broad-leaf arrowhead (Sagittaria latafolia) had the greatest importance value with a tally of 30.06 points of a possible 200. Broad-leaf arrowhead was followed by river seedbox (Ludwigia leptocarpa) (I.V. of 26.9), cattails (Typha latafolia) (18.37), and beggar ticks (Bidens frondosa) (I.V. 16.1).

Broad-leaf arrowhead had the highest relative dominance with a value of 19.79 and highest relative frequency with a value of 10.27. River seedbox was second in these two categories with a relative frequency of 9.19 and a relative dominance of 17.71. Third was cattails with a relative frequency of 8.11 and a relative dominance of 10.26.

KE AREA

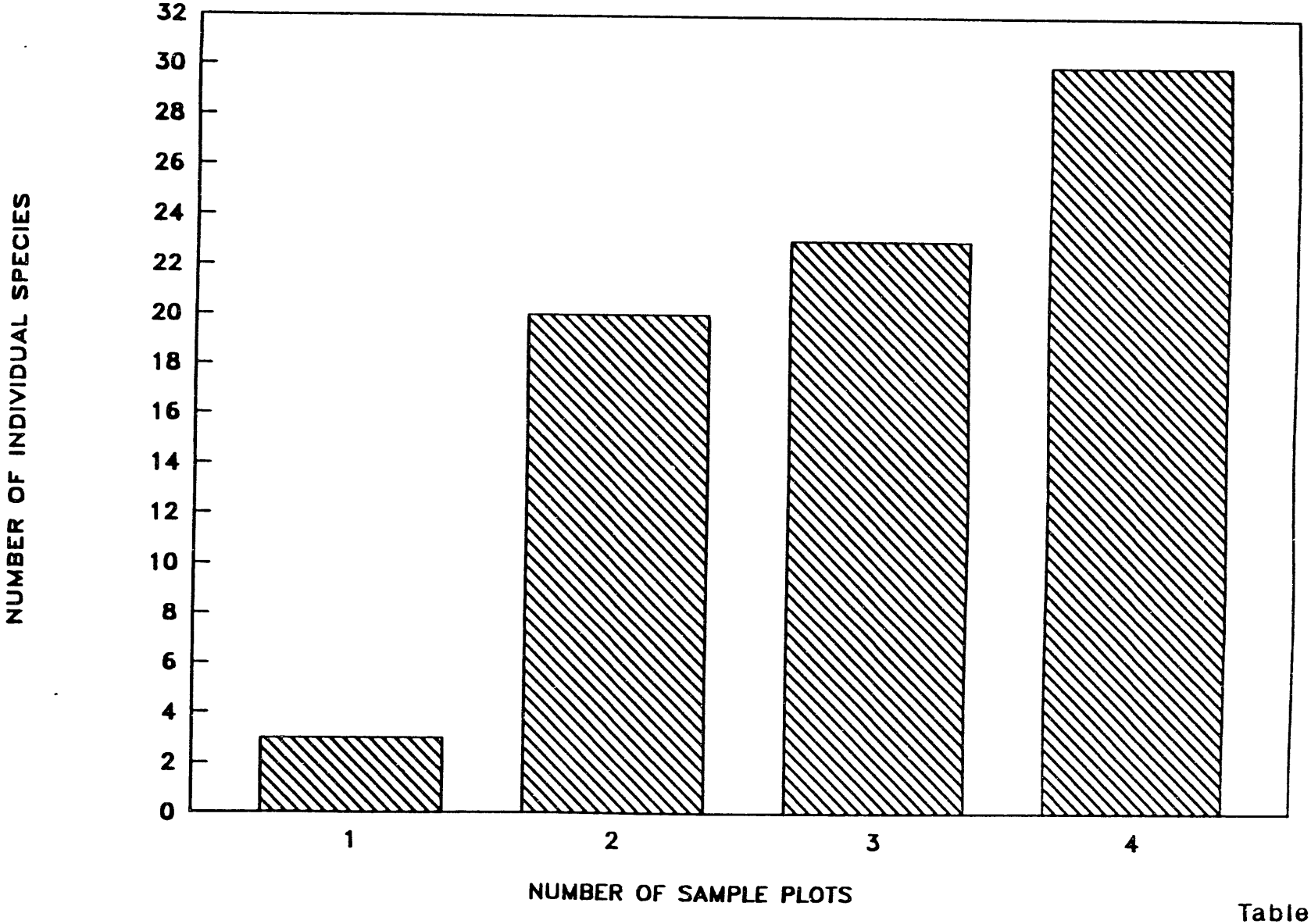


Table KE-1

TABLE KE-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KE 1-4

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 8 Total Subplot Area = 200.00

Species Name: My ce									
									1
	Plot I.D. #	Diameter (in.)	Basal Area (cm)						
count/avg	1	1	18.3				1	0	1 18.29213
total			18.3						18.29213
Density	0.13								
Dominance	2.29								
Frequency	0.13								0.125
Rel. Den.	100.00								100
Rel. Dom.	100.00								100
Rel. Freq	100.00								100
Imp. Val.	300.00								300

Species Richness= 0 Diversity= 0

Table KE 2-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KE 1-4

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 8 Total Subplot Area = 200.00

Species Name: Ce oc				Species Name: My ce				Species Name: Sa ni				3	
Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)		
count/avg	3	4	0.9		1	4	1.9		2	7	1.6	6 1.176091	15 4.401116
total			3.5				7.6				11.3		22.44714
Density	0.50				0.50				0.88				
Dominance	0.44				0.95				1.41				
Frequency	0.38				0.13				0.25			0.75	
Rel. Den.	26.67				26.67				46.67			100	
Rel. Dom.	15.80				33.86				50.34			100	
Rel. Freq	50.00				16.67				33.33			100	
Imp. Val.	92.47				77.19				130.34			300	

Species Richness= 1.700548 Diversity=0.685714

Table KE 3-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KE Micro-plot No.: 20

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ae In	8	17.02	0.4000	9.08	4.32	13.41
Al Ph	3	0.75	0.1500	0.40	1.62	2.02
Am Co	5	1.53	0.2500	0.82	2.70	3.52
Az Ca	5	0.75	0.2500	0.40	2.70	3.10
Bi Fr	14	16.00	0.7000	8.54	7.57	16.10
Bi Sp	1	0.94	0.0500	0.50	0.54	1.04
Bo cy	13	6.50	0.6500	3.47	7.03	10.50
Ce Oc	1	0.45	0.0500	0.24	0.54	0.78
Cy Sp	11	3.59	0.5500	1.92	5.95	7.86
Ec al	5	1.33	0.2500	0.71	2.70	3.41
Ec Cr	2	0.60	0.1000	0.32	1.08	1.40
Eu Ca	2	0.30	0.1000	0.16	1.08	1.24
Ga Ob	1	0.16	0.0500	0.08	0.54	0.62
Gr sp	2	0.30	0.1000	0.16	1.08	1.24
Ha Re	1	0.16	0.0500	0.08	0.54	0.62
Hy qu	1	1.89	0.0500	1.01	0.54	1.55
Le or	6	8.44	0.3000	4.50	3.24	7.74
Le sp	7	5.09	0.3500	2.72	3.78	6.50
Lu Al	2	0.89	0.1000	0.48	1.08	1.56
Lu De	11	12.22	0.5500	6.52	5.95	12.47
Lu Le	17	33.19	0.8500	17.71	9.19	26.90
My br	1	0.16	0.0500	0.08	0.54	0.62
Mi sc	6	4.79	0.3000	2.56	3.24	5.80
Mu Ke	1	1.89	0.0500	1.01	0.54	1.55
Po Hy	9	5.03	0.4500	2.68	4.86	7.55
Po Pu	1	0.16	0.0500	0.08	0.54	0.62
Sa La	19	37.09	0.9500	19.79	10.27	30.06
Sa ni	2	0.30	0.1000	0.16	1.08	1.24
Sab ca	3	1.34	0.1500	0.71	1.62	2.33
Sc cy	3	2.32	0.1500	1.24	1.62	2.86
Sp Ze	5	2.41	0.2500	1.29	2.70	3.99
Tr Wa	1	0.45	0.0500	0.24	0.54	0.78
Tr sp	1	0.16	0.0500	0.08	0.54	0.62
Ty La	15	19.22	0.7500	10.26	8.11	18.37
	34	187.421014	9.25	100	100	200

Richness= 14.56 Diversity= 0.89

Table KE 4-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KE Micro-plot No.: 20

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ae In	8	17.02	0.4000	9.08	4.32	13.41
Al Ph	3	0.75	0.1500	0.40	1.62	2.02
Am Co	5	1.53	0.2500	0.82	2.70	3.52
Az Ca	5	0.75	0.2500	0.40	2.70	3.10
Bi Fr	14	16.00	0.7000	8.54	7.57	16.10
Bi Sp	1	0.94	0.0500	0.50	0.54	1.04
Bo cy	13	6.50	0.6500	3.47	7.03	10.50
Ce Oc	1	0.45	0.0500	0.24	0.54	0.78
Cy Sp	11	3.59	0.5500	1.92	5.95	7.86
Ec al	5	1.33	0.2500	0.71	2.70	3.41
Ec Cr	2	0.60	0.1000	0.32	1.08	1.40
Eu Ca	2	0.30	0.1000	0.16	1.08	1.24
Ga Ob	1	0.16	0.0500	0.08	0.54	0.62
Gr sp	2	0.30	0.1000	0.16	1.08	1.24
Ha Re	1	0.16	0.0500	0.08	0.54	0.62
Hy qu	1	1.89	0.0500	1.01	0.54	1.55
Le or	6	8.44	0.3000	4.50	3.24	7.74
Le sp	7	5.09	0.3500	2.72	3.78	6.50
Lu Al	2	0.89	0.1000	0.48	1.08	1.56
Lu De	11	12.22	0.5500	6.52	5.95	12.47
Lu Le	17	33.19	0.8500	17.71	9.19	26.90
My br	1	0.16	0.0500	0.08	0.54	0.62
Mi sc	6	4.79	0.3000	2.56	3.24	5.80
Mu Ke	1	1.89	0.0500	1.01	0.54	1.55
Po Hy	9	5.03	0.4500	2.68	4.86	7.55
Po Pu	1	0.16	0.0500	0.08	0.54	0.62
Sa La	19	37.09	0.9500	19.79	10.27	30.06
Sa ni	2	0.30	0.1000	0.16	1.08	1.24
Sab ca	3	1.34	0.1500	0.71	1.62	2.33
Sc cy	3	2.32	0.1500	1.24	1.62	2.86
Sp Ze	5	2.41	0.2500	1.29	2.70	3.99
Tr Wa	1	0.45	0.0500	0.24	0.54	0.78
Tr sp	1	0.16	0.0500	0.08	0.54	0.62
Ty La	15	19.22	0.7500	10.26	8.11	18.37
	34	187.421014	9.25	100	100	200

Richness= 14.56 Diversity= 0.89

Table KE 4-2

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KE Micro-plot No.: 20

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ae In	8	17.02	0.4000	9.08	4.32	13.41
Al Ph	3	0.75	0.1500	0.40	1.62	2.02
Am Co	5	1.53	0.2500	0.82	2.70	3.52
Az Ca	5	0.75	0.2500	0.40	2.70	3.10
Bi Fr	14	16.00	0.7000	8.54	7.57	16.10
Bi Sp	1	0.94	0.0500	0.50	0.54	1.04
Bo cy	13	6.50	0.6500	3.47	7.03	10.50
Ce Oc	1	0.45	0.0500	0.24	0.54	0.78
Cy Sp	11	3.59	0.5500	1.92	5.95	7.86
Ec al	5	1.33	0.2500	0.71	2.70	3.41
Ec Cr	2	0.60	0.1000	0.32	1.08	1.40
Eu Ca	2	0.30	0.1000	0.16	1.08	1.24
Ga Ob	1	0.16	0.0500	0.08	0.54	0.62
Gr sp	2	0.30	0.1000	0.16	1.08	1.24
Ha Re	1	0.16	0.0500	0.08	0.54	0.62
Hy qu	1	1.89	0.0500	1.01	0.54	1.55
Le or	6	8.44	0.3000	4.50	3.24	7.74
Le sp	7	5.09	0.3500	2.72	3.78	6.50
Lu Al	2	0.89	0.1000	0.48	1.08	1.56
Lu Oe	11	12.22	0.5500	6.52	5.95	12.47
Lu Le	17	33.19	0.8500	17.71	9.19	26.90
My br	1	0.16	0.0500	0.08	0.54	0.62
Mi sc	6	4.79	0.3000	2.56	3.24	5.80
Mu Ke	1	1.89	0.0500	1.01	0.54	1.55
Po Hy	9	5.03	0.4500	2.68	4.86	7.55
Po Pu	1	0.16	0.0500	0.08	0.54	0.62
Sa La	19	37.09	0.9500	19.79	10.27	30.06
Sa ni	2	0.30	0.1000	0.16	1.08	1.24
Sab ca	3	1.34	0.1500	0.71	1.62	2.33
Sc cy	3	2.32	0.1500	1.24	1.62	2.86
Sp Ze	5	2.41	0.2500	1.29	2.70	3.99
Tr Wa	1	0.45	0.0500	0.24	0.54	0.78
Tr sp	1	0.16	0.0500	0.08	0.54	0.62
Ty La	15	19.22	0.7500	10.26	8.11	18.37
	34	187.421014	9.25	100	100	200

Richness= 14.56 Diversity= 0.89

Table KE 4-3

KF AREA

KF Area runs along the wetland/upland boundary east of the Boardwalk and north of Stave Island. All plots were sampled within the wetland area and were placed at equal intervals. This was done at SRL staff's request to show the transition of the vegetation as distance increased from the flowing water of Pen Branch into the marsh. The area is dominated with persistent and nonpersistent emergent vegetation. To the east, there was an increase in mature bald cypress trees (Taxodium distichum) and the density of seedlings and saplings greatly increases.

KF Area begins east of the boardwalk and extends for approximately 1.25 miles to the east (Figure 7). A small logging road off Water Gap Road was used to access the site. Plot intervals were set at approximately 0.1 mile as measured by a car odometer.

A total of 10 plots were sampled within KF Area (Figure 7). The sampling area is located within the Wicomico Terrace subregion of the Pleistocene Coastal Terraces and rest at an elevation of 80 feet msl.

There were 77 species documented within the 10 sampling plots in KF Area. Analysis of the species area curve shows sampling of the area for vegetation to be sufficient with the completion of the fourth sampling plot (Table KF-1).

The average canopy height of the sparse overstory vegetation was measured at 78 feet (Table KF-2).

Overstory Stratum (Table KF-3)

Very little overstory was found in the natural swamp of the Savannah River floodplain (KF Area). Only three species occurred, having a total of 51 individuals that were measured for dbh. The diversity for the overstory vegetation was a moderate 0.57.

Bald cypress, water tupelo (Nyssa aquatica), and black gum (Nyssa sylvatica) were the three species occupying this area. Bald cypress had over twice the basal area coverage (42,509.2 sq cm) than water tupelo (20,882.7 sq cm) and almost 10 times the coverage area of black gum (4356.8 sq cm).

All values were highest for bald cypress, followed by water tupelo and then black gum. The importance values, in descending order from the highest to lowest, were 181.28 percent for bald cypress; 84.3 percent for water tupelo; and 34.42 percent for black gum. The relative frequency for bald cypress was 63.64 with both of the Nyssa spp. have a frequency of 18.18. Bald cypress had a density of 54.9 and a relative dominance of 62.75, both far higher than the value for the other two species in KF Area.

The overstory vegetation became progressively more dense as distance from the mouth of Pen Branch increased.

Understory Stratum (KF-4)

A total of 54 individuals representing 4 distinct species were measured within the understory stratum of KF Area. The area has a extremely low diversity with a value of 0.23 percent. Out of the possible 300 importance value points, wax myrtle (Myrica cerifera) had the greatest value with 202.18 points. Black Willow (Salix nigra) followed with a value of 51.82.

Wax myrtle was the most frequently occurring species with 47 individuals having a relative frequently of 58.33. The wax myrtle also had the highest relative dominance (56.81).

Shrub Layer Stratum (Table KF-5)

KF Area shrub layer vegetation, as with the overstory and understory vegetation, was represented by only a few species (5); however, there were 396 individuals measured within the sampling plots. Even with the high number of individuals being measured, the diversity was only a moderate 0.59.

As with the understory stratum, wax myrtle was the dominant species with a relative dominance of 56.16 percent and an importance value of 134.31. Following the wax myrtle was buttonbush (Cephalanthus occidentalis) with a relative dominance of 37.72 percent and an importance value of 113.92.

Buttonbush was the most frequently occurring species with a frequency of 35.29. Wax myrtle had the highest density (density of 48.74) and was followed by buttonbush (density of 40.91).

Analysis of the density of the vegetative growth of KF Area understory stratum shows the wax myrtle (87.04) to be much better established than the other three species occurring in the sampling area. As previously described, the KF Area occurs within the floodplain of the Savannah River. The plot is located just below the wetland/upland boundary of the floodplain and remains inundated with water for a great portion of the growing season. The area sampled is undergoing successional trends from a persistent/nonpersistent vegetative community to a palustrine/forested wetland. The dense growth of the natural successional communities could be compared to KD and KE Area successional trends in the disturbed community. With hydrology (inundation) and soils being similar, the vegetational succession in the disturbed area has been dominated by black willow, while the wax myrtle appears to be far better at colonizing the undisturbed, naturally changing areas.

Ground Cover Stratum (Table KF-6)

A total of 68 species were sampled within the KF Area ground cover stratum. The diversity for this area was an extremely high 0.93. Marsh dewflower (Murdannia keisak), a highly successful introduced plant, held the highest importance value with a tally of 21.28 points out of a possible 200. Following closely were broad-leaf arrowhead (Sagittaria latifolia) (18.48), cattails (Typha latifolia) (15.36) and false nettle (Boehermia cylindrica) (15.34).

False nettle occurred in 21 of the 29 sampling plots for a relative frequency of 7.66. Broad-leaf arrowhead was next with 20 plot occurrences for a relative frequency of 7.30 and was followed by marsh dewflower with a relative frequency of 6.20.

Marsh dewflower had a relative dominance of 15.08 for the highest rating for dominance in the KF ground cover stratum. Following, in descending order of dominance, were broad-leaf arrowhead (relative dominance of 11.18), cattails (relative dominance of 10.25), and false nettle (relative dominance 7.68).

KF AREA

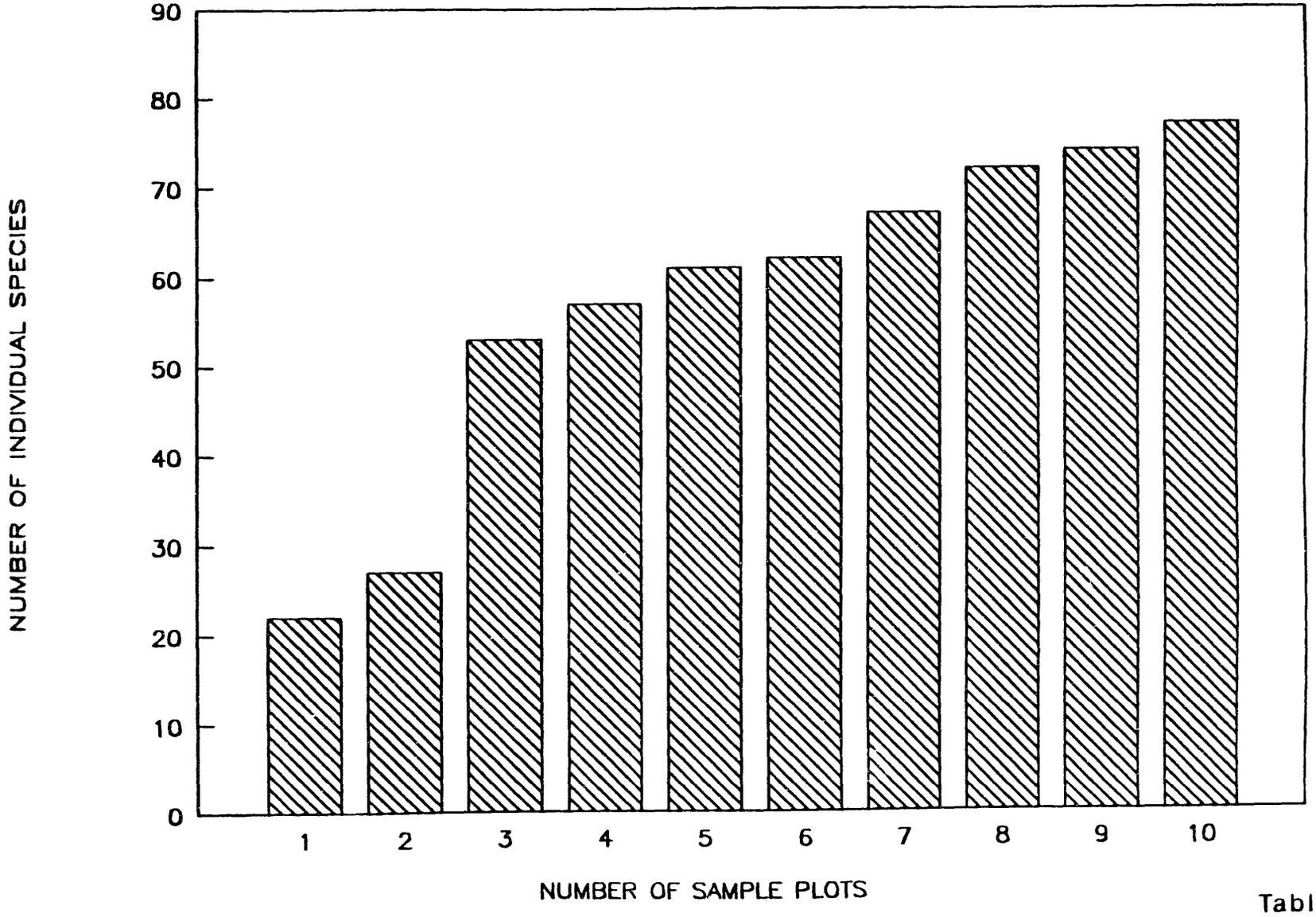


Table KF-1

TABLE KF-2

PEN BRANCH
AVERAGE TREE CANOPY HEIGHTS

	I	IA	IB	KA	KB	KC	KD	KE	KF
1	**	70	75	**	**	58	XX	XX	**
2	**	**	70	55	**	XX	XX	XX	**
3	**	60	76	**	**	XX	XX	XX	**
4	**	70	60	51	**	XX	XX	XX	72
5	62	72	54	**	70	XX	XX	XX	**
6	78	62	68	**	**	XX	XX	XX	82
7	65	39	80	70	**	70	XX	XX	80
8	95	60	55	85	**	XX	XX	XX	XX
9	XX	60	65	**	**	XX	XX	XX	XX
10	XX	XX	66	50	**	XX	XX	XX	XX
AVG. HT.	75	61.	66.	62.	70	64	0	0	78

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KF 1-10

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 10 Total Subplot Area = 5000.00

	Species Name: Ta di Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ny aq Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ny sy Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	3	
count/avg	7	28	1518.2	2	18	1160.1	2	5	871.4	11 1.707570	51 3549.689
total			42509.2			20882.7			4356.8		67748.66
Density	2.80			1.80			0.50				
Dominance	4250.92			2088.27			435.68				
Frequency	0.70			0.20			0.20			1.1	
Rel. Den.	54.90			35.29			9.80			100	
Rel. Dom.	62.75			30.82			6.43			100	
Rel. Freq	63.64			18.18			18.18			100	
Imp. Val.	181.28			84.30			34.42			300	

Species Richness= 1.171254 Diversity=0.575686

Table KF 3-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KF 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Ce oc Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: My ce Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Sa ni Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Li st Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	4	1.7	7	47	2.9	1	2	47.4	1	1	1.3
total			6.8			135.4			94.9			1.3
Density	0.20			2.35			0.10			0.05		
Dominance	0.34			6.77			4.74			0.06		
Frequency	0.15			0.35			0.05			0.05		
Rel. Den.	7.41			87.04			3.70			1.85		
Rel. Dom.	2.87			56.81			39.79			0.53		
Rel. Freq	25.00			58.33			8.33			8.33		
Imp. Val.	35.28			202.18			51.82			10.72		

Species Richness= 1.731707 Diversity=0.239692

Table KF 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KF 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	4		
12	1.732393	54	53.28649
			238.4058
	0.6		
	100		
	100		
	100		
	300		

Table KF 4-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KF 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

	Species Name: Ce oc Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: My ce Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Pi ta Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)	Species Name: Ta di Common Name: Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	18	162	1.0	15	193	1.3	5	10	0.6	12	30	0.7
total			167.1			248.7			5.9			20.8
Density	8.10			9.65			0.50			1.50		
Dominance	8.35			12.44			0.29			1.04		
Frequency	0.90			0.75			0.25			0.60		
Rel. Den.	40.91			48.74			2.53			7.58		
Rel. Dom.	37.72			56.16			1.33			4.69		
Rel. Freq	35.29			29.41			9.80			23.53		
Imp. Val.	113.92			134.31			13.66			35.80		

Species Richness= 1.539826 Diversity=0.590218

Table KF 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: KF 1-10

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 20 Total Subplot Area = 500.00

Species Name:						
Pi pa				5		
Common Name:						
Plot						
I.D. #	Diameter (in.)		Basal Area (cm)			
1	1	0.5		51	2.597695	396 4.056383
		0.5				442.9130
0.05						
0.02						
0.05				2.55		
0.25				100		
0.10				100		
1.96				100		
2.32				300		

Table KF 5-2

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KF Micro-plot No.: 29

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	1	0.31	0.0345	0.23	0.36	0.59
Ae in	3	0.31	0.1034	0.23	1.09	1.32
Am co	1	0.11	0.0345	0.08	0.36	0.45
Bo cy	21	10.67	0.7241	7.68	7.66	15.34
Ca ra	1	0.11	0.0345	0.08	0.36	0.45
Car sp	9	4.69	0.3103	3.38	3.28	6.66
Ce Oc	8	6.94	0.2759	4.99	2.92	7.91
Cy Sp	3	0.31	0.1034	0.23	1.09	1.32
Du Ar	1	0.11	0.0345	0.08	0.36	0.45
Ec Al	3	0.31	0.1034	0.23	1.09	1.32
Ec Co	2	0.21	0.0690	0.15	0.73	0.88
Eu Ca	3	0.52	0.1034	0.37	1.09	1.47
Ga Sp	1	0.11	0.0345	0.08	0.36	0.45
Ga ti	2	0.21	0.0690	0.15	0.73	0.88
Ha Re	2	0.21	0.0690	0.15	0.73	0.88
Hy Mu	8	1.77	0.2759	1.27	2.92	4.19
Hy Ve	7	0.72	0.2414	0.52	2.55	3.07
Hy Sp	2	0.62	0.0690	0.45	0.73	1.18
Ju Co	1	0.65	0.0345	0.47	0.36	0.83
Ju Sp	1	0.11	0.0345	0.08	0.36	0.45
Le Or	6	1.16	0.2069	0.83	2.19	3.02
Lee Sp	3	4.19	0.1034	3.02	1.09	4.11
Lu Al	2	0.21	0.0690	0.15	0.73	0.88
Lu De	1	0.11	0.0345	0.08	0.36	0.45
Lu Le	4	2.15	0.1379	1.55	1.46	3.01
Lu Pa	2	0.21	0.0690	0.15	0.73	0.88
Lu sp	2	0.21	0.0690	0.15	0.73	0.88
Ly Ru	5	0.72	0.1724	0.52	1.82	2.34
Mi Re	1	0.11	0.0345	0.08	0.36	0.45
Mi sc	13	3.91	0.4483	2.81	4.74	7.56
Mu ke	17	20.95	0.5862	15.08	6.20	21.28
My Ce	10	8.48	0.3448	6.10	3.65	9.75
Ny Aq	3	0.31	0.1034	0.23	1.09	1.32
Ob Vi	4	1.16	0.1379	0.83	1.46	2.29

Table KF 6-1

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: KF Micro-plot No.: 29

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Pan sp	2	0.21	0.0690	0.15	0.73	0.88
Pa Ri	6	1.57	0.2069	1.13	2.19	3.32
Bi fr	1	0.11	0.0345	0.08	0.36	0.45
Po Hy	3	0.31	0.1034	0.23	1.09	1.32
Po sp	1	0.11	0.0345	0.08	0.36	0.45
Po Pu	9	1.63	0.3103	1.18	3.28	4.46
Po Sa	2	0.21	0.0690	0.15	0.73	0.88
Rh Co	1	0.31	0.0345	0.23	0.36	0.59
Ru Sp	1	0.11	0.0345	0.08	0.36	0.45
Sa Al	1	0.31	0.0345	0.23	0.36	0.59
Sa Ce	3	0.31	0.1034	0.23	1.09	1.32
Sag Sp	6	1.90	0.2069	1.37	2.19	3.56
Sa La	20	15.54	0.6897	11.18	7.30	18.48
Sa ni	2	0.75	0.0690	0.54	0.73	1.27
Sc cy	5	3.85	0.1724	2.77	1.82	4.60
Sc Sp	2	0.42	0.0690	0.30	0.73	1.03
Ta Di	15	7.58	0.5172	5.46	5.47	10.93
To Ra	1	0.11	0.0345	0.08	0.36	0.45
Sp Ze	1	0.31	0.0345	0.23	0.36	0.59
Tr Wa	12	6.19	0.4138	4.45	4.38	8.83
Tr sp	2	0.42	0.0690	0.30	0.73	1.03
Ty La	14	14.25	0.4828	10.25	5.11	15.36
Cyperus Sp	1	0.11	0.0345	0.08	0.36	0.45
Unknown 2	3	2.90	0.1034	2.09	1.09	3.18
Unknown 3	1	2.60	0.0345	1.87	0.36	2.23
Unknown 4	1	2.60	0.0345	1.87	0.36	2.23
Unknown 5	1	0.11	0.0345	0.08	0.36	0.45
Unknown 6	1	0.11	0.0345	0.08	0.36	0.45
Unknown 7	2	0.96	0.0690	0.69	0.73	1.42
Unknown 8	1	0.11	0.0345	0.08	0.36	0.45
	64	138.98	9.45	100	100	200

Richness= 25.84 Diversity= 0.93

Table KF 6-2

9.0 RESULTS AND DISCUSSION - PINE UPLANDS

HD AREA

HD Area consisted of sampling in some areas which were inundated with water as well as sampling in an upland pine/oak xeric forest. When possible, sites which contained mesic or hydric soil conditions were sampled; however, much of the sampling within this area was conducted in the dryer areas.

The sample area is located northeast of Road C-6 adjacent to C Line of the SRS railway system. There were five plots sampled within HD Area (Figure 8). The area is located in the Aiken Plateau subregion of the Upper Coastal Plain province and lies at 300 feet msl in elevation.

The many roads which traverse the site were used to gain access to the area. Other than logging and past road construction, the area seemed to be free from impact associated with SRS operations. One plot (HD-4) appeared to be on an old home site.

A total of 31 species were documented during the sampling of the vegetational strata within the five sampling plots in HD Area. Analysis of the species area curve for the area shows sampling of the vegetation to be sufficient after the completion of the fifth sampling plot (Table HD-1).

The average overstory canopy height for HD Area was 66 feet (Table HD-2).

Overstory Stratum (Table HD-3)

The overstory stratum for HD Area had a low diversity of 0.31 for the seven species found within the five plots. A total of 116 individuals of the overstory total of 141 individuals were loblolly pine (Pinus taeda). Except for relative frequency (35.71), computed parameters were much higher for the loblolly pine than any other species. The relative density was 82.27 and the relative dominance was 89.85. The

summation of these values yields an importance value of 207.83 of a possible 300 points for the loblolly pine. One other species, black cherry (Prunus angustifolia), occurred in more than one plot (relative frequency of 28.57).

Understory Stratum (Table HD-4)

HD Area understory had a low diversity of 0.42 with a total of 60 individuals of six different species being measured for basal area coverage. Loblolly pine dominated the understory with an importance value of 199.31 points, based on a relative density of 75.0 percent, a relative dominance of 71.37 percent, and a relative frequency of 52.94.

Black cherry (Prunus serotina) had the second highest relative dominance, at 12.47, and, along with water oak (Quercus nigra) and wax myrtle (Myrica cerifera), had a relative frequency of 11.76 percent. Wax myrtle had the second greatest relative density with a value of 10.0 percent, followed by water oak (density of 6.67).

Shrub Layer Stratum (Table HD-5)

The 14 species measured within the 10 plots in HD Area shrub layer produced a diversity of 0.73. A total of 115 individuals were sampled, with loblolly pine dominating three of the four statistical parameters. Loblolly pine had the greatest importance value (I.V. of 76.41), relative frequency (20.69), and relative dominance (33.11), and the second greatest relative density (22.61).

A species of Lespedeza (Lespedeza sp.) had the second highest importance value (70.35) and relative dominance (14.79). Lespedeza also had the highest relative density (45.22).

Ground Cover Stratum (Table HD-6)

The ground cover stratum for HD Area had a diversity of 0.83 within the 10 plots sampled. Yellow honeysuckle (Lonicera japonica) had the highest importance value, at 45.96, followed by a species of blackberry (Vaccinum sp.) (I.V. of 28.88), yellow jasimine (Gelsemium sempervirens) (I.V. of 20.0), and loblolly pine and black cherry (I.V. of 13.36 each).

Yellow honeysuckle had the greatest relative dominance, with a value of 31.67, followed by blackberry (relative dominance of 24.12). Yellow jasmine and yellow honeysuckle each occurred in 3 of the 10 plots for the highest frequency of occurrence (relative frequency of 14.29 percent).

HD AREA

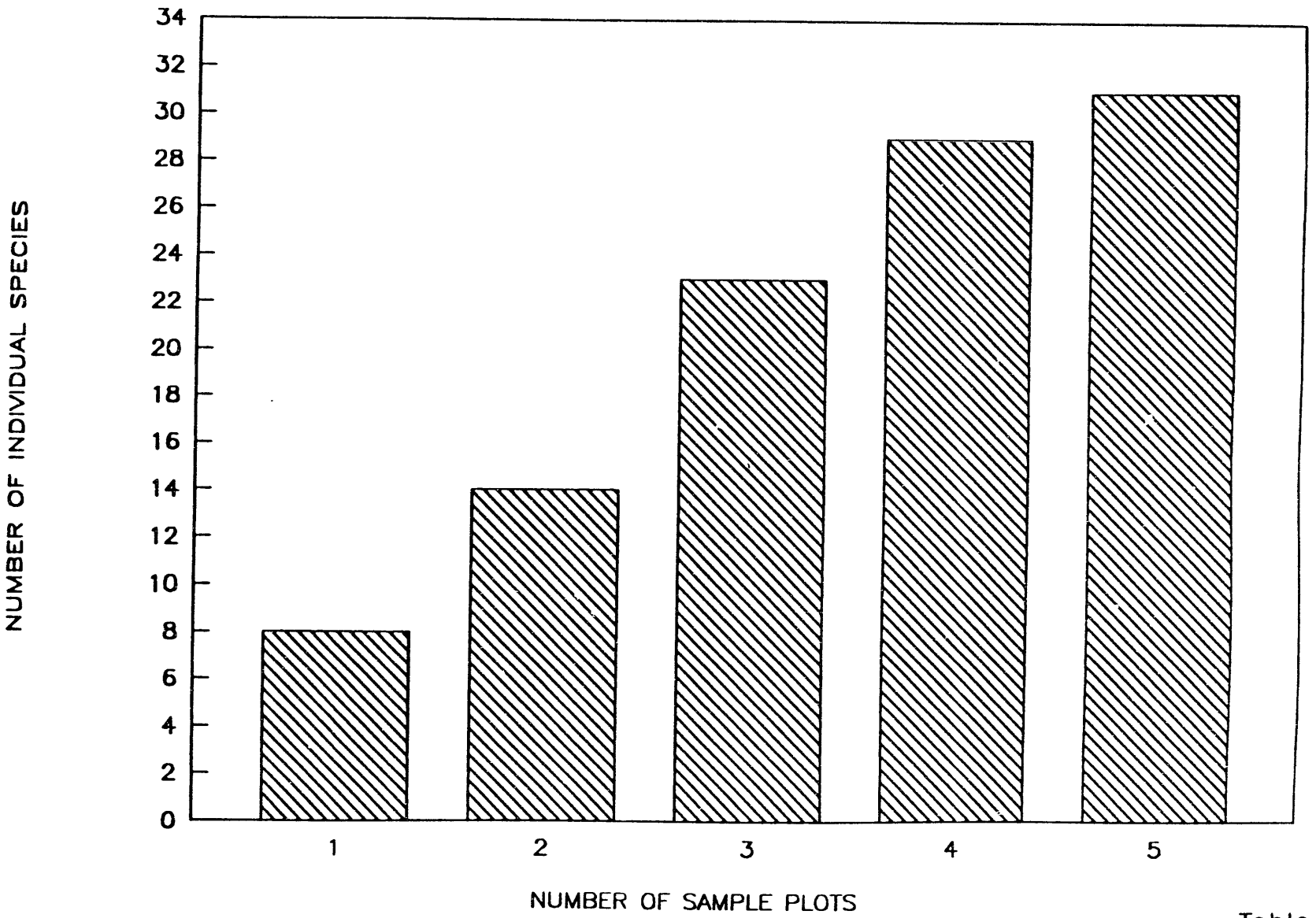


Table HD-1

TABLE HD-2

PINE UPLANDS
AVERAGE TREE CANOPY HEIGHTS

	HE	HF	HD
1	75	72	62
2	**	60	55
3	70	70	**
4	**	62	72
5	62	90	75
AVG. HT.	69	70.	66

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

Species Name: Pi ta				Species Name: Pr se				Species Name: Ny sy				Species Name: Qustvm			
Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)	Plot I.D. #		Diameter (in.)	Basal Area (cm)
count/avg	5	116	454.5		4	7	215.1		1	2	288.9		1	9	159.5
total			52717.0				1505.5				577.9				1435.4
Density	23.20				1.40				0.40				1.80		
Dominance	10543.40				301.10				115.58				287.08		
Frequency	1.00				0.80				0.20				0.20		
Rel. Den.	82.27				4.96				1.42				6.38		
Rel. Dom.	89.85				2.57				0.98				2.45		
Rel. Freq	35.71				28.57				7.14				7.14		
Imp. Val.	207.83				36.10				9.55				15.97		

Species Richness= 2.791711 Diversity=0.317325

Table HD 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00 25 m^2 # of Subplots 20

Species Name: Pi pa			Species Name: Qu aa			Species Name: Ca ca			7		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	5	375.0	1	1	292.7	1	1	270.0	14	2.149219	141 2055.616
		1874.8			292.7			270.0			58673.22
1.00			0.20			0.20					
1.00			0.20			0.20					
374.95			58.53			54.00					
0.20			0.20			0.20			2.8		
3.55			0.71			0.71			100		
3.20			0.50			0.46			100		
7.14			7.14			7.14			100		
13.88			8.35			8.31			300		

Table HD 3-2

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Qu ni			Species Name: Pi ta			Species Name: My ce			Species Name: Qu al		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	2	4	8.0	9	45	20.1	2	6	11.2	1	2	46.2
total			32.2			904.9			67.3			92.5
Density	0.40			4.50			0.60			0.20		
Dominance	3.22			90.49			6.73			9.25		
Frequency	0.20			0.90			0.20			0.10		
Rel. Den.	6.67			75.00			10.00			3.33		
Rel. Dom.	2.54			71.37			5.31			7.29		
Rel. Freq	11.76			52.94			11.76			5.88		
Imp. Val.	20.97			199.31			27.07			16.51		

Species Richness= 2.811909 Diversity=0.427683

Table HD 4-1

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Rh co			Species Name: Pr se				6	
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	1	13.0	2	2	79.1		17 1.778151	60 177.6479
		13.0			158.1			1267.934
0.10			0.20					
0.10			0.20					
1.30			15.81					
0.10			0.20				1.7	
1.67			3.33				100	
1.02			12.47				100	
5.88			11.76				100	
8.57			27.57				300	

Table HD 4-2

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Pi ta			Species Name: Pr se			Species Name: Qu st			Species Name: Di vi		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	26	1.2	4	5	0.3	2	2	3.2	2	2	1.0
total			29.9			1.4			6.3			2.0
Density	2.60			0.50			0.20			0.20		
Dominance	2.99			0.14			0.63			0.20		
Frequency	0.60			0.40			0.20			0.20		
Rel. Den.	22.61			4.35			1.74			1.74		
Rel. Dom.	33.11			1.51			7.00			2.24		
Rel. Freq	20.69			13.79			6.90			6.90		
Imp. Val.	76.41			19.65			15.64			10.88		

Species Richness= 6.308542 Diversity=0.735469

Table HD 5-1

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Va sp			Species Name: My ce			Species Name: Rh co			Species Name: Qu ni		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	3	0.8	3	11	1.1	1	1	0.1	1	2	1.9
		2.5			12.4			0.1			3.7
0.30			1.10			0.10			0.20		
0.25			1.24			0.01			0.37		
0.10			0.30			0.10			0.10		
2.61			9.57			0.87			1.74		
2.80			13.73			0.06			4.15		
3.45			10.34			3.45			3.45		
8.86			33.64			4.37			9.33		

Table HD 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Qu la			Species Name: Le sp			Species Name: Li st			Species Name: Qu al		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	2	2.3	3	52	0.3	1	1	1.3	1	2	1.3
		4.6			13.4			1.3			2.5
0.20			5.20			0.10			0.20		
0.20			5.20			0.10			0.20		
0.46			1.34			0.13			0.25		
0.20			0.30			0.10			0.10		
1.74			45.22			0.87			1.74		
5.04			14.79			1.40			2.80		
6.90			10.34			3.45			3.45		
13.68			70.35			5.72			7.99		

Table HD 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HD 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00 Total Subplot Area = 250.00

Species Name: Pr an		Species Name: Qu sp		14	
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	5	2.0	1	1	0.5
		9.8			0.5
	0.50			0.10	
	0.98			0.05	
	0.10			0.10	
	4.35			0.87	
	10.87			0.50	
	3.45			3.45	
	18.66			4.82	

29	2.060697	115	16.99735
			90.44728
	2.9		
	100		
	100		
	100		
	300		

Table HD 5-4

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: HD Micro-plot No.: 10

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
An Sp	1	0.89	0.1000	5.73	4.76	10.49
Ca Fo	1	0.30	0.1000	1.95	4.76	6.71
Cr Sp	1	0.89	0.1000	5.73	4.76	10.49
Ge Se	3	0.89	0.3000	5.72	14.29	20.00
Le Sp	1	0.30	0.1000	1.95	4.76	6.71
Lo Ja	3	4.94	0.3000	31.67	14.29	45.96
Pan Sp	1	0.89	0.1000	5.73	4.76	10.49
Pi Ta	2	0.60	0.2000	3.83	9.52	13.36
Pr Se	2	0.60	0.2000	3.83	9.52	13.36
Rh Co	1	0.30	0.1000	1.95	4.76	6.71
Ru Sp	1	0.30	0.1000	1.95	4.76	6.71
Smi Gl	1	0.30	0.1000	1.95	4.76	6.71
Sm Sm	1	0.30	0.1000	1.95	4.76	6.71
Unknown vine	1	0.30	0.1000	1.95	4.76	6.7'
Va sp	1	3.76	0.1000	24.12	4.76	28.88
	15	15.60	2.1	100	100	200

Richness= 10.59 Diversity= 0.83

Table HD 6-1

Dames & Moore

HE AREA

HE Area is located in a mature, upland pine forest with a subcanopy consisting of scattered hardwoods. Evidence of logging (i.e., grown over logging roads) is recognizable on the site. The area has a gently sloping terrain with xeric soil conditions. The vegetation in all strata sampled was characteristic of this upland environment, quite different from that found in the Four Mile Creek and Pen Branch sampling areas.

HE Area is located west of Road C-6 and approximately 1000 feet north of C Line of the SRS railway system. Road C-6 and Road C-5 were used to access the site. The five sampling plots in the area are located within the Aiken Plateau subregion of the Upper Coastal province and are at an elevation of 300 feet msl (Figure 8).

There were 40 plant species measured within the five sampling plots in HE Area. By analyzing the species area curve, sampling is shown to be statistically surficient after the fifth plot (Table HE-1).

The average height of the canopy in this sampling area is 69 feet (Table HE-2).

Overstory Stratum (Table HE-3)

The diversity for the HE Area overstory was a moderate 0.59. A total of 133 individual specimens of six species were measured within the five plots. Slash pine (Pinus elliotti) had a total basal area coverage of 37,925.2 sq cm for a relative dominance of 67.18 percent. This species had a total of 69 specimens recorded and a relative density of 51.88 percent. Slash pine had the highest importance value with 144.06 out of a possible 300 points.

Loblolly pine (Pinus taeda) was the only species which occurred in all five of the plots, with a relative frequency of 31.25 percent; loblolly ranked second in relative dominance (23.76) and relative density (35.34) for an importance value of 90.34.

Black cherry (Prunus serotina) and slash pine were second in relative frequency, with a value of 25.0 percent.

Understory Stratum (Table HE-4)

A total of 44 specimens of eight different species were measured in the 10 understory stratum plots of HE Area for a diversity of 0.69. Loblolly pine had the greatest importance value with an I.V. of 118.29. Following loblolly pine, in descending order of importance, were slash pine (I.V. of 102.14), and black cherry (I.V. of 29.97).

Loblolly pine was found in 6 of the 10 plots sampled and had a relative frequency of 33.33 percent. The second highest frequency of occurrence was slash pine, with specimens being recorded in four of the plots and a relative frequency of 22.22 percent. Black cherry had a relative frequency of 16.67 percent. All other species were found in only one plot and had a relative frequency of 5.56.

Slash pine had the highest relative density (40.91) and the second highest relative dominance with a value of 39.01 percent. Loblolly pine had the greatest relative dominance (46.32) and was second with a relative density of 38.64 percent.

Shrub Layer Stratum (Table HE-5)

HE Area shrub layer held a high diversity of 0.81, with 65 specimens of 14 distinct species sampled within the 10 plots. Wax myrtle (Myrica cerifera) had the highest statistical values of all the species in the HE Area shrub layer, as follows: relative frequency of 15.38; relative dominance of 25.74; relative density of 38.46; and an importance value of 79.58.

Chickasaw plum (Prunus angustifolia) led in three of the categories with the following values: importance value of 43.37; relative dominance of 22.60; and a

relative density of 16.92. There were three species [slash pine, American holly (Ilex opaca), water oak (Quercus nigra)] shared the second highest relative frequency with values of 11.57. Slash pine also had the third highest measures of the following: importance value of 38.93, relative dominance of 16.62, and relative density of 10.77.

Ground Layer Stratum (Table HE-6)

The diversity of the ground layer stratum of HE Area was 0.87. A total of 23 species were measured and recorded within the 10 plots that were sampled. Yellow honeysuckle (Lonicera japonica) and Virginia creeper (Parthenocissus quinquefolia) each occurred in 10 of the plots for a relative frequency of 9.76 percent. Virginia creeper had the greatest relative dominance with a value of 28.66, followed by muscadine (Vitis rotundifolia) (relative dominance of 12.97) and yellow jasmine (Gelsemium sempervirens) (relative dominance of 10.99).

HE AREA

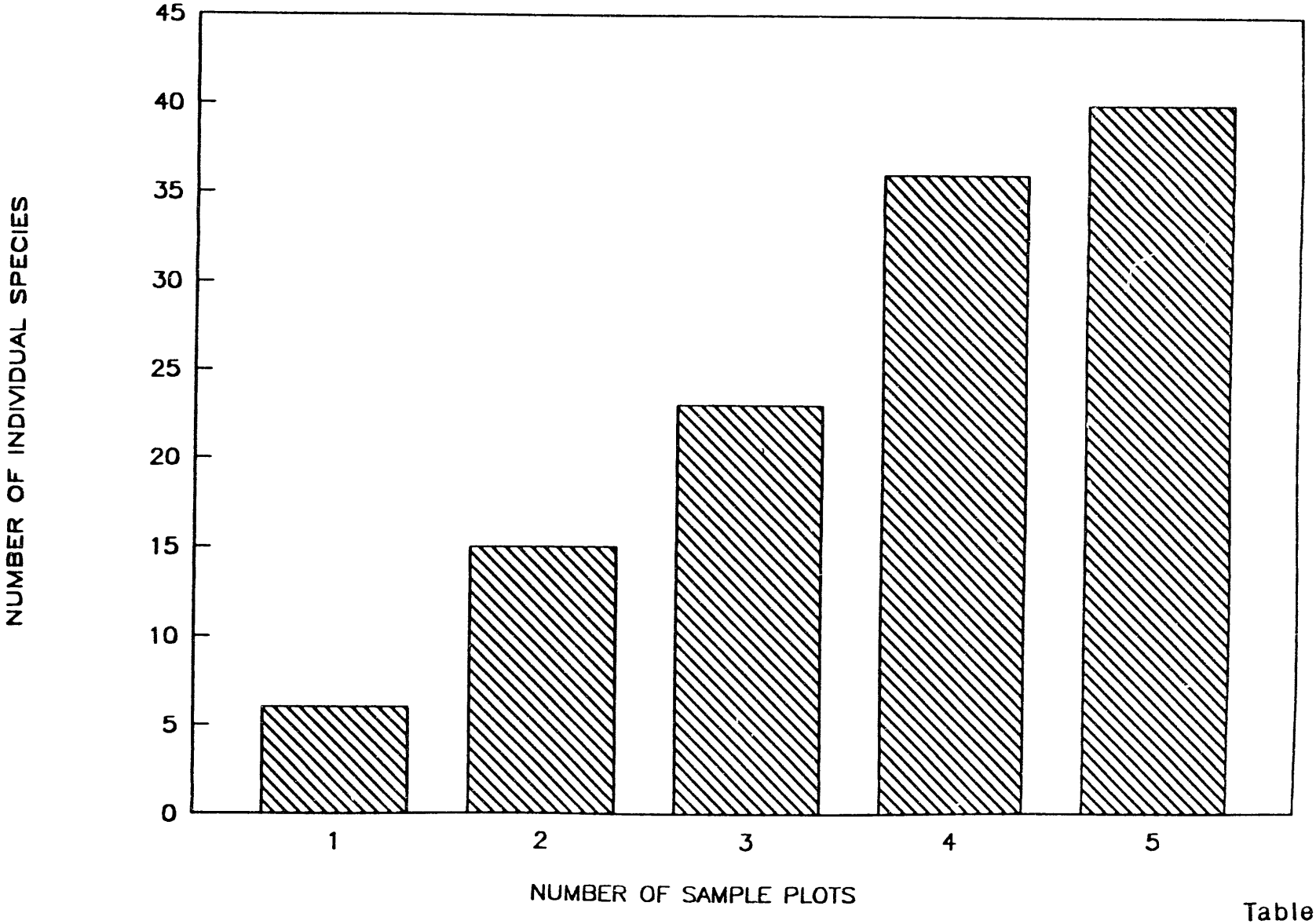


Table HE-1

TABLE HE-2

PINE UPLANDS
AVERAGE TREE CANOPY HEIGHTS

	HE	HF	HD
1	75	72	62
2	**	60	55
3	70	70	**
4	**	62	72
5	62	90	75
AVG. HT.	69	70.	66

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

	Species Name: Pi el Common Name:			Species Name: Pi ta Common Name:			Species Name: Pr se Common Name:			Species Name: Qu ni Common Name:		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	4	69	549.6	5	47	285.4	4	14	192.0	1	1	153.3
total			37925.2			13411.6			2687.9			153.3
Density	13.80			9.40			2.80			0.20		
Dominance	7585.04			2682.33			537.59			30.66		
Frequency	0.80			1.00			0.80			0.20		
Rel. Den.	51.88			35.34			10.53			0.75		
Rel. Dom.	67.18			23.76			4.76			0.27		
Rel. Freq	25.00			31.25			25.00			6.25		
Imp. Val.	144.06			90.34			40.29			7.27		

Species Richness= 2.354213 Diversity=0.599225

Table HE 3-1

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00 Total Subplot Area =

Species Name: Qu fa Common Name:			Species Name: Pi ec Common Name:					
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	1	1641.7	1	1	635.6	6		
		1641.7			635.6			
0.20			0.20					
328.35			127.12					
0.20			0.20			3.2		
0.75			0.75			100		
2.91			1.13			100		
6.25			6.25			100		
9.91			8.13			300		
						16	2.123851	133 3457.614
								56455.37

Table HE 3-2

Dames & Moore

BELT TRAN

Plot Size

Species N Pi pa	
Plot I.D. #	
1	
1.00	
374.95	
0.20	
3.55	
3.20	
7.14	
13.88	

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Pi ta			Species Name: Va ar			Species Name: Pi el			Species Name: Rh co		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	6	17	36.8	1	2	21.6	4	18	29.3	1	1	3.2
total			625.7			43.2			527.0			3.2
Density	1.70			0.20			1.80			0.10		
Dominance	62.57			4.32			52.70			0.32		
Frequency	0.60			0.10			0.40			0.10		
Rel. Den.	38.64			4.55			40.91			2.27		
Rel. Dom.	46.32			3.20			39.01			0.24		
Rel. Freq	33.33			5.56			22.22			5.56		
Imp. Val.	118.29			13.30			102.14			8.07		

Species Richness= 4.259325 Diversity=0.690274

Table HE 4-1

Dames & Moore

BELT TRANSECT

Plot Size = 50

	Speci / Qu ni		
	Plot I.D.		
count/avg			
total			
Density	0		
Dominance	3		
Frequency	0		
Rel. Den.	6		
Rel. Dom.	2		
Rel. Freq	11		
Imp. Val.	20		

Species Richnes

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Pr se			Species Name: Qu ni			Species Name: Qu st			Species Name: Qu la		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	3	29.2	1	1	11.4	1	1	39.7	1	1	13.0
		87.6			11.4			39.7			13.0
0.30			0.10			0.10			0.10		
8.76			1.14			3.97			1.30		
0.30			0.10			0.10			0.10		
6.82			2.27			2.27			2.27		
6.49			0.84			2.94			0.96		
16.67			5.56			5.56			5.56		
29.97			8.67			10.77			8.79		

Table HE 4-2

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	8
18 1.643452	44
	1.8
	100
	100
	100
	300

Table HE 4-3

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Il op			Species Name: My ce			Species Name: Pi ta			Species Name: Pi el		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	3	4	2.0	4	25	1.1	2	3	1.0	3	7	2.5
total			8.0			26.6			3.0			17.2
Density	0.40			2.50			0.30			0.70		
Dominance	0.80			2.66			0.30			1.72		
Frequency	0.30			0.40			0.20			0.30		
Rel. Den.	6.15			38.46			4.62			10.77		
Rel. Dom.	7.75			25.74			2.89			16.62		
Rel. Freq	11.54			15.38			7.69			11.54		
Imp. Val.	25.44			79.58			15.20			38.93		

Species Richness= 7.170778 Diversity=0.810096

Table HE 5-1

Dames & Moore

BELT

Plot

Speci
Va sp
Plot I.D.
0
0
0
2
2
3
8

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Di vi			Species Name: Sa al			Species Name: Qu la			Species Name: Qu ni		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	2	3.0	1	1	0.2	1	1	2.5	3	4	2.1
		5.9			0.2			2.5			8.4
0.20			0.10			0.10			0.40		
0.59			0.02			0.25			0.84		
0.20			0.10			0.10			0.30		
3.08			1.54			1.54			6.15		
5.74			0.20			2.40			8.09		
7.69			3.85			3.85			11.54		
16.50			5.58			7.79			25.78		

Table HE 5-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Li st			Species Name: Vacc sp			Species Name: Cra sp			Species Name: Pr an		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
1	1	0.5	1	1	0.2	1	1	0.1	1	11	2.1
		0.5			0.2			0.1			23.4
	0.10			0.10			0.10			1.10	
	0.05			0.02			0.01			2.34	
	0.10			0.10			0.10			0.10	
	1.54			1.54			1.54			16.92	
	0.44			0.20			0.05			22.60	
	3.85			3.85			3.85			3.85	
	5.83			5.58			5.43			43.37	

Table HE 5-3

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HE 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00 Total Subplot Area = 250.00

Species Name: Pr se			Species Name: Qustvm				
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
2	3	1.9	1	1	1.8	26 1.812913	65 20.82167
		5.7			1.8		103.3683
0.30			0.10				
0.57			0.18				
0.20			0.10			2.6	
4.62			1.54			100	
5.54			1.76			100	
7.69			3.85			100	
17.85			7.15			300	

Table HE 5-4

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: HE Micro-plot No.: 10

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
An Sp	2	0.60	0.2000	1.67	4.88	6.55
As Pl	2	2.17	0.2000	6.05	4.88	10.93
As Sp	1	0.30	0.1000	0.85	2.44	3.29
Ce Vi	1	0.30	0.1000	0.85	2.44	3.29
Cl Ma	2	0.60	0.2000	1.67	4.88	6.55
De To	2	1.19	0.2000	3.32	4.88	8.19
Ga Ci	1	0.30	0.1000	0.85	2.44	3.29
Ga Sp	2	0.60	0.2000	1.67	4.88	6.55
Ge Se	4	3.94	0.4000	10.99	9.76	20.74
Le Cu	1	0.30	0.1000	0.85	2.44	3.29
Lo Ja	1	0.30	0.1000	0.85	2.44	3.29
Pa Qu	4	10.27	0.4000	28.66	9.76	38.41
Pan Sp	2	0.60	0.2000	1.67	4.88	6.55
Pr An	1	0.30	0.1000	0.85	2.44	3.29
Rhy Sp	1	0.89	0.1000	2.50	2.44	4.93
Ro Na	1	0.30	0.1000	0.85	2.44	3.29
Ru Sp	1	0.89	0.1000	2.50	2.44	4.93
Sm Gl	2	1.19	0.2000	3.32	4.88	8.19
Sol Sp	1	0.30	0.1000	0.85	2.44	3.29
To Ra	1	0.30	0.1000	0.85	2.44	3.29
Tr Ur	3	2.46	0.3000	6.87	7.32	14.19
Unknown	3	3.05	0.3000	8.52	7.32	15.84
Vi Ro	2	4.65	0.2000	12.97	4.88	17.85
	23	35.82	4.1	100	100	200

Richness= 13.64 Diversity= 0.87

Table HE 6-1

HF AREA

HF Area is composed of an immature upland pine forest of 15 to 20 years age. As the trees occur in a row formation and there is extensive growth of slash pine (Pinus elliotti), which is not endemic to the SRS, the area appears to have been planted. This sampling area is similar to HE Area but is more of a pine monoculture, though there are hardwoods within this study site. Ground cover is limited to the hardy upland plant species such as Vaccinum spp. and Lespedezia spp. As with HE Area, the vegetation community in this study area is quite different from the sample areas of Four Mile Creek and Pen Branch.

HF Area begins east of the junction of Road 3 and Road C and extends for approximately 500 feet to the northwest. This study site is located within the Aiken Plateau subregion of the Upper Coastal Plain Province. The five study plots are at the 300 foot msl elevation contour (Figure 8).

A total of 23 species were documented within the five plots sampled in the HF Area. Analysis of the species area curve shows the sampling to be sufficient after the completion of the fourth plot (Table HF-1).

The average height for the overstory canopy was 71 feet (Table HF-2).

Overstory Stratum (Table HF-3)

HF Area had a total of 113 individuals of nine different species measured for dbh. The diversity for the five plots sampled was 0.76. The nine species had a total basal area of 60,546.52 sq cm, with an average of 5554.76 sq cm, which represents a fairly mature overstory stratum. Loblolly pine (Pinus taeda) had the largest total basal area (19,590.5 sq cm) and a relative dominance of 32.36. Sweetgum (Liquidambar styraciflua) followed with a total basal area of 13,230.8 sq cm and a relative dominance of 21.85. Third highest was red maple (Acer rubrum) with a total basal area of 10,635.8 sq cm and a relative dominance of 17.57.

Red maple was documented in three of the five plots for the highest relative frequency (23.08 percent). Loblolly pine and sweet gum had two plot occurrences for a relative frequency of 15.38 percent. The other six species were each found in only one of the five plots sampled.

Loblolly pine had the highest importance value of the nine species with a value of 72.52. Following loblolly pine were red maple (importance value of 68.96) and sweet gum (importance value of 66.44)

Understory stratum (Table HF-4)

A total of 70 individual specimens from six different species were measured and recorded from the 10 understory plots sampled within HF Area. The vegetation had a diversity of 0.61.

Sweet gum had a total of 140.73 importance value points of a possible 300. Following sweet gum were red maple (I.V. of 115.46) and water oak (Quercus nigra). Sweet gum and red maple each occupied seven plots for a relative frequency of 38.89 percent. All other species occurred in only one plot.

Sweet gum had the greatest relative dominance with a value of 56.12 and a relative density of 45.71. Red maple had a relative dominance of 33.71 and a relative density of 42.86.

Shrub Layer Stratum (Table HF-5)

The shrub layer stratum for HF Area had a diversity of 0.76 with 10 species occurring within the 10 plots sampled. Red maple had the highest importance value with a total of 98.85 points. Following red maple, in descending order, were sweet gum (I.V. of 82.64), wax myrtle (Myrica cerifera) (I.V. of 42.15), and loblolly pine (I.V. of 26.9).

Sweet gum was documented in 6 of the 10 plots for a relative frequency of 23.08 percent. Red maple was second with five occurrences yielding a relative frequency of 19.23 percent. Loblolly pine occurred in four plots for a relative frequency of 15.38.

Red maple had the greatest relative density (37.04) and relative dominance (42.59). Sweet gum followed with a relative density of 27.16 and a relative dominance of 32.40.

Ground Layer Stratum (Table HF-6)

The HF Area ground layer stratum had a highly diverse flora (diversity of 0.90). A total of 17 species were found within this area. The most dominant of these species was yellow honeysuckle (Lonicera japonica) with a relative dominance of 23.63 percent. White-leaf catbriar (Smilax glauca) was second with a relative dominance of 12.92 and tied for third were round-leaf catbriar (Smilax rotundifolia), poison ivy (Toxicodendron radicans), and peppervine (Ampelopsis arborea), each with a relative dominance of 8.09 percent.

Round-leaf catbriar and yellow honeysuckle were each found in four plots for a relative frequency of 12.12 percent. Peppervine, round-leaf catbriar, and poison ivy all were in three plots for a relative frequency of 9.09.

The highest importance value was computed for yellow honeysuckle (I.V. of 35.75), followed by white-leaf catbriar (25.04), and three species (poison ivy, round-leaf catbriar, and peppervine) with importance values of 17.18.

HF AREA

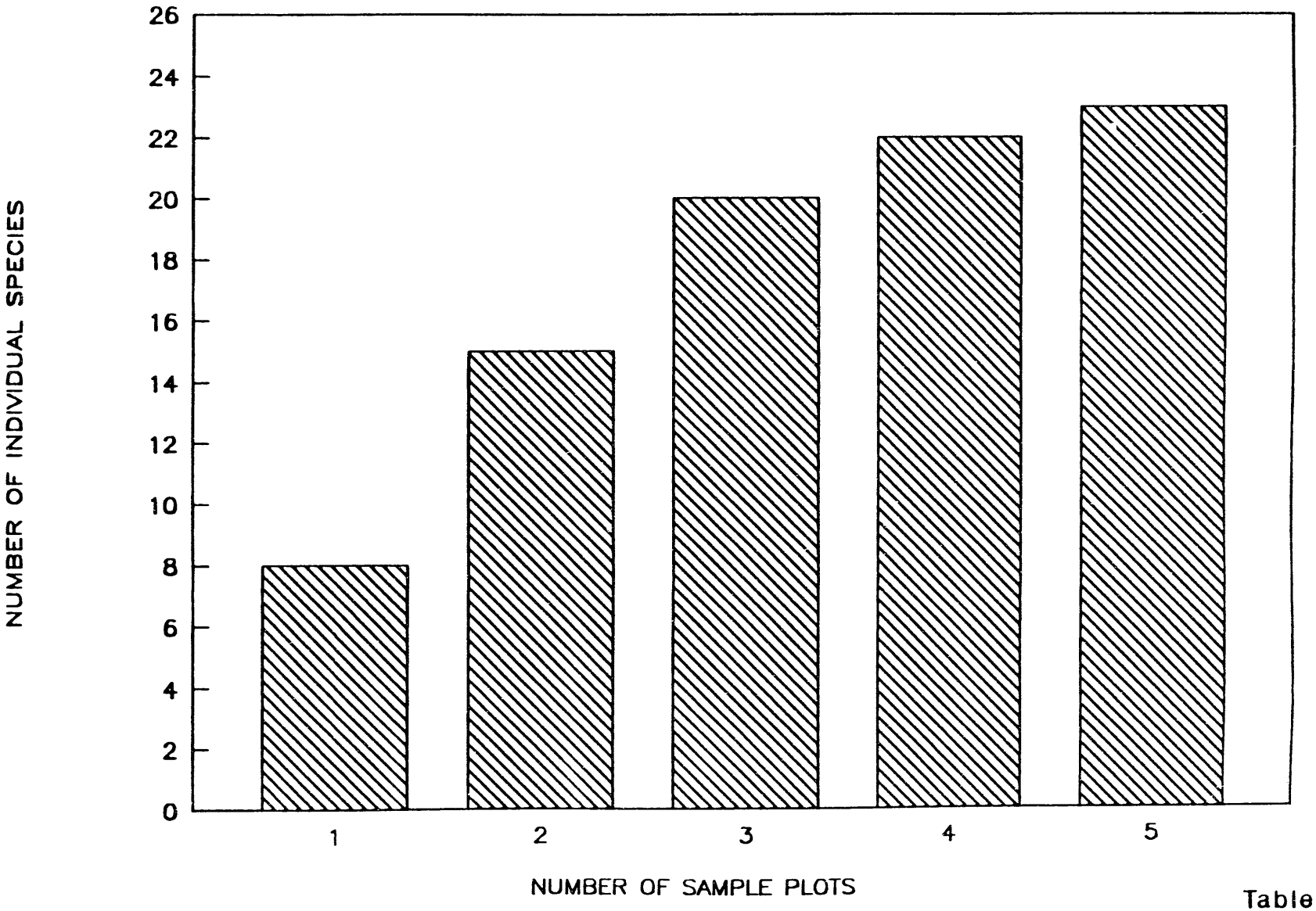


Table HF-1

TABLE HF-2

PINE UPLANDS
AVERAGE TREE CANOPY HEIGHTS

	HE	HF	HD
1	75	72	62
2	**	60	55
3	70	70	**
4	**	62	72
5	62	90	75
AVG. HT.	69	70.	66

** - No overstory vegetation occurred within these sample areas.

XX - No plots were measured within these areas.

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

	Species Name: Ny sy			Species Name: Li st			Species Name: Ac ru			Species Name: Pl oc		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	1	11	672.2	2	33	400.9	3	32	332.4	1	1	81.1
total			7394.0			13230.8			10635.8			81.1
Density	2.20			6.60			6.40			0.20		
Dominance	1478.81			2646.17			2127.17			16.21		
Frequency	0.20			0.40			0.60			0.20		
Rel. Den.	9.73			29.20			28.32			0.88		
Rel. Dom.	12.21			21.85			17.57			0.13		
Rel. Freq	7.69			15.38			23.08			7.69		
Imp. Val.	29.64			66.44			68.96			8.71		

Species Richness= 3.896587 Diversity=0.768805

Table HF 3-1

Dames & Moore

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

Species Name: Pi ta			Species Name: Qu ni			Species Name: Qu ph			Species Name: Qu sp		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
2	28	699.7	1	1	81.1	1	3	1060.1	1	3	2062.7
		19590.5			81.1			3180.3			6188.2
5.60			0.20			0.60			0.60		
3918.11			16.21			636.07			1237.63		
0.40			0.20			0.20			0.20		
24.78			0.88			2.65			2.65		
32.36			0.13			5.25			10.22		
15.38			7.69			7.69			7.69		
72.52			8.71			15.60			20.57		

Table HF 3-2

VEGETATION ANALYSIS
OVERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 500 m^2 # of Subplots 5 Total Subplot Area = 2500.00

Species Name: Qu la				9	
Plot I.D. #	Diameter (in.)	Basal Area (cm)			
1	1	164.6		13 2.053078	113 5554.764
		164.6			60546.52
0.20					
32.93					
0.20				2.6	
0.88				100	
0.27				100	
7.69				100	
8.85				300	

Table HF 3-3

Dames & Moore

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

	Species Name: Li st			Species Name: Ny sy			Species Name: Fr pe			Species Name: Ac ru		
	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg	7	32	24.1	1	1	4.1	1	2	3.8	7	30	15.4
total			770.4			4.1			7.5			462.7
Density	3.20			0.10			0.20			3.00		
Dominance	77.04			0.41			0.75			46.27		
Frequency	0.70			0.10			0.10			0.70		
Rel. Den.	45.71			1.43			2.86			42.86		
Rel. Dom.	56.12			0.30			0.55			33.71		
Rel. Freq	38.89			5.56			5.56			38.89		
Imp. Val.	140.73			7.28			8.96			115.46		

Species Richness= 2.709883 Diversity=0.612422

Table HF 4-1

VEGETATION ANALYSIS
UNDERSTORY DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: My ce			Species Name: Qu ni			6	
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	2	5.1	1	3	39.2	18 1.845098	70 91.71532
		10.2			117.7		1372.670
0.20			0.30				
1.02			11.77				
0.10			0.10			1.8	
2.86			4.29			100	
0.75			8.57			100	
5.56			5.56			100	
9.16			18.41			300	

Table HF 4-2

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: Li st				Species Name: Ca ca			Species Name: Ac ru			Species Name: Pi ta		
Plot I.D. #	Diameter (in.)	Basal Area (cm)		Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
count/avg 6	22	2.2		3	5	0.2	5	30	2.2	4	6	1.0
total		49.2				1.1			64.6			6.2
Density 2.20				0.50			3.00			0.60		
Dominance 4.92				0.11			6.46			0.62		
Frequency 0.60				0.30			0.50			0.40		
Rel. Den. 27.16				6.17			37.04			7.41		
Rel. Dom. 32.40				0.73			42.59			4.11		
Rel. Freq 23.08				11.54			19.23			15.38		
Imp. Val. 82.64				18.45			98.85			26.90		

Species Richness= 4.715782 Diversity=0.762654

Table HF 5-1

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00

Species Name: My ce			Species Name: My sy			Species Name: Qu ph			Species Name: Ul al		
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)
3	13	1.7	1	1	2.5	1	1	0.5	1	1	1.8
		22.1			2.5			0.5			1.8
1.30			0.10			0.10			0.10		
2.21			0.25			0.05			0.18		
0.30			0.10			0.10			0.10		
16.05			1.23			1.23			1.23		
14.56			1.64			0.30			1.20		
11.54			3.85			3.85			3.85		
42.15			6.72			5.38			6.28		

Table HF 5-2

Dames & Moore

VEGETATION ANALYSIS
SHRUB LAYER DATA
WESTINGHOUSE SAVANNAH RIVER COMPANY

BELT TRANSECT SITE: HF 1-5

Plot Size = 500 m^2 Subplot Size = 25 m^2 # of Subplots 10 Total Subplot Area = 250.00 250.00

Species Name: Qu la			Species Name: Qu ni				
						10	
Plot I.D. #	Diameter (in.)	Basal Area (cm)	Plot I.D. #	Diameter (in.)	Basal Area (cm)		
1	1	2.5	1	1	1.3	26 1.908485	81 15.86143
		2.5			1.3		151.7082
0.10			0.10				
0.25			0.13				
0.10			0.10			2.6	
1.23			1.23			100	
1.64			0.84			100	
3.85			3.85			100	
6.72			5.92			300	

Table HF 5-3

Dames & Moore

GROUND COVER
MICRO-PLOT QUADRAT VEGETATION ANALYSIS
WESTINGHOUSE SAVANNAH RIVER COMPANY

LOCATION: HF Micro-plot No.: 9

SPECIES NAME	TOTAL POINTS	DOMINANCE	FREQUENCY	RELATIVE DOMINANCE	RELATIVE FREQUENCY	IMPORTANCE VALUE
Ac Ru	1	0.34	0.1111	1.66	3.03	4.69
Am Ar	3	1.65	0.3333	8.09	9.09	17.18
Ca ro	2	1.32	0.2222	6.48	6.06	12.54
Ge se	2	0.66	0.2222	3.26	6.06	9.32
Ju Ef	1	0.99	0.1111	4.88	3.03	7.91
Li st	1	0.34	0.1111	1.66	3.03	4.69
Lo ja	4	4.81	0.4444	23.63	12.12	35.75
My ce	2	1.32	0.2222	6.48	6.06	12.54
Pa qu	1	0.34	0.1111	1.66	3.03	4.69
Qu la	1	0.34	0.1111	1.66	3.03	4.69
Qu ph	1	0.34	0.1111	1.66	3.03	4.69
Ru Sp	2	0.66	0.2222	3.26	6.06	9.32
Smilax sp	1	0.34	0.1111	1.66	3.03	4.69
Sm gl	4	2.63	0.4444	12.92	12.12	25.04
Sm ro	3	1.65	0.3333	8.09	9.09	17.18
To ra	3	1.65	0.3333	8.09	9.09	17.18
Vi ro	1	0.99	0.1111	4.88	3.03	7.91
	17	20.34	3.67	100	100	200

Richness= 10.54 Diversity= 0.90

Table HF 6-1

10.0 SUMMARY OF RESULTS

10.1 FOUR MILE CREEK

The following brief summary indicates the highlights of the vegetation field sampling program conducted in wetlands along Four Mile Creek at the SRS during the summer of 1990.

HC Area

The HC Area was designated by the SRS staff to be used as a control area for the rest of the study. Within the HC Area, overstory, understory, shrub and ground cover vegetation was surveyed from permanent field plots. A total of 15 species were recorded from the overstory stratum, including a tally of 106 individuals. The dominant species included yellow poplar, sweet gum and white oak. The diversity of the overstory stratum was 0.88. The understory stratum for the HC Area included 22 species, 163 individuals and a species diversity of 0.91. The understory dominants included sweet bay, American holly, red bay, red maple, and sweet gum. The shrub stratum had a diversity of 0.92 and included data on 23 distinct species. The dominants in the shrub stratum included sweet bay, sweet gum, fetterbush, American holly and red bay. The ground cover stratum was quite diverse with representation by 42 distinct species. The dominants were fetterbush, Scirpus sp. and giant bamboo.

HB Area

The HB Area exhibited a moderate diversity of species within all of the strata measured, though the values were not as high as noted for the HC Area. The overstory of the HB Area included 11 species and a total of 78 measured individuals within the stratum. Black gum, red maple and yellow poplar were the dominant species in the sampling area. The understory vegetation in this sampling area included 9 species and measurements on 27 individuals, which accounted for a species

diversity of 0.82. The dominants within this stratum included American holly, red maple and yellow poplar.

The shrub stratum in the HB sampling area included measurements of 100 individuals representing 14 species accounting for a species diversity of 0.74. Red bay, American holly and fetterbush were the shrub dominants. The ground cover stratum in this sampling area was composed of 18 measured species. The dominants in this vegetative layer included fetterbush, netted chain-fern and partridge berry.

FA Area

The FA sampling area overstory included a measurement on 97 individuals from seven species and accounted for a species diversity of 0.54. The dominants within this stratum included black gum, sweet bay, yellow poplar and red maple. The understory stratum of the FA sampling area included eight species and measurements of 52 individuals. The species diversity within this stratum was 0.83. The dominant species recorded included American holly, sweet gum, sweet bay, and red maple. The shrub layer included measurements of 147 individuals from 21 species and accounted for a species diversity of 0.87. The dominants within this layer included rusty blackhaw, sweet bay, sweet gum, and American holly. The ground cover stratum included 32 species recorded for the sampling area. Rusty blackhaw, netted chain-fern and giant bamboo were the dominants from the FA sampling area. The ground cover had a diversity of 0.91.

FB Area

The overstory of the FB sampling area included a total of 108 individuals representing nine species. The species diversity of this stratum was 0.50, and the dominant species included black gum, yellow poplar, red maple and sweet bay. The understory stratum included 10 species with 57 individuals tallied. The species diversity of this sampling layer was 0.81. The dominants included American holly, sweet gum, red maple, sweet bay, and red bay. The shrub layer included 79

individuals representing 24 species and accounted for a species diversity of 0.66. The dominant species in the shrub layer included sweet bay, rusty blackhaw, and American holly. The ground cover stratum included 28 species, for a diversity of 0.89; dominant species included netted chain-fern, climbing hydrangea, Virginia willow and giant bamboo.

FC Area

The vegetation of the FC Area was characterized by an overstory stratum with nine species counting 57 individuals and possessing a species diversity of 0.82. The dominant overstory species include black gum, water oak, red maple, and sweet bay. The understory stratum included 32 individuals counted from eight species. The species diversity for this stratum was 0.79. The understory dominants included red maple, sweet gum, bitternut hickory and American holly. The shrub layer vegetation included 132 individuals drawn from 28 species, which accounted for a species diversity of 0.89. The dominant components of the shrub layer included possumhaw, red maple, tag alder, and sweet gum. The vegetation of the ground cover included 29 species counting 56 individuals for a diversity of 0.89. Dominants observed from the sampling plots included netted chain-fern, giant bamboo, daisy and red maple.

DB Area

The overstory vegetation of the DB sampling area included nine species tallying 93 individuals which resulted in a species diversity of 0.83. The dominants within the sampling areas included yellow poplar, black gum, red maple, sweet bay, and black willow. The vegetation of the understory layer included representation by 12 species and counted 153 individuals. The species diversity for this stratum was 0.72. Tag alder, red maple, sweet bay, and black gum were the dominant species recorded from this layer. The shrub stratum was characterized by 365 individuals representing 20 species. The species diversity was 0.85 for this large sampling segment. Tag alder, possumhaw and Virginia willow were the dominants from this vegetation layer. Ground cover vegetation for the DB Area consisted of 54 species for a diversity of

0.89 and included as dominants the spotted touch-me-not, marsh dewflower and netted chain-fern.

DA Area

The DA sampling area contained 10 species in the overstory stratum. A total of 93 individuals were recorded and resulted in a species diversity of 0.84. Dominant overstory species were yellow poplar, sweet gum, black gum, and bald cypress. The understory stratum included 11 species counting 94 individuals and resulted in a species diversity of 0.75. The dominants included tag alder, wax myrtle and sweet gum. The shrub layer included 24 species and accounted for a species diversity of 0.85. Tag alder, wax myrtle and Virginia willow were the dominants in this stratum. The ground cover stratum included 61 species and a total of 441 individuals were counted, for a diversity of 0.94. This area yielded the greatest abundance of herbaceous species for the areas sampled. The dominants included marsh dewflower and woolgrass.

D Area

Overstory vegetation was not present in D Area due to site-specific conditions. The understory stratum in the D Area consisted of seven species counting 75 individuals. The species diversity for the understory was 0.65. The dominants of this stratum included tag alder and black willow. The shrub stratum of the D Area was composed of 139 individuals drawn from 10 species. The species diversity was 0.68. Black willow, tag alder and bayberry were the dominant shrub stratum components. The ground cover for the D Area was comprised of 72 species and included as dominants cutgrass, climbing hempweed, false nettle and tear-thumb. The diversity for D Area ground cover was 0.94.

10.2 PEN BRANCH

The following brief summary indicates the highlights of the vegetation field sampling program conducted in wetlands along Pen Branch at the SRS during the summer of 1990.

I Area

Eight plots were sampled within I Area on the upper reaches of Pen Branch. The overstory contained 151 specimens of eight species for a moderate diversity of 0.61. The dominants within the overstory were black gum, sweet gum, red maple, and American holly. There were 107 individuals in the understory stratum of I Area. The diversity was calculated to be 0.86. Dominants within the stratum were American holly, sweet gum, and black gum.

The shrub layer had a diversity of 0.91 and a total of 35 species. Tag alder led relative dominance by having over twice the basal area coverage for a relative dominance of 28.71. The ground cover was dominated by Royal fern, netted chain-fern, and woolgrass. The diversity for the ground cover stratum was a high 0.92.

IA Area

IA Area was similar in diversity measures to I Area. The overstory had 212 individuals, of which were predominantly black gum, red maple, and sweet gum, for a diversity of 0.83. The understory was led by tag alder in three of the four categories of measurements and had a diversity of 0.87.

The shrub layer contained 488 specimens of 37 species for an extremely high diversity of 0.93. Seventy of the 488 specimens were arrow wood. Virginia willow was also well represented within the understory.

IB Area

A total of 10 plots were surveyed within IB Area, which is relatively unimpacted from SRS operations. The overstory had 230 individuals for a diversity of 0.80. Yellow poplar and black gum were the dominant tree species according to total basal area coverage. The understory, which had 17 species occurring within the 20 plots, had a diversity of 0.90.

Virginia willow ranked high in all measurements for IB Area shrub layer stratum. The stratum had a high diversity of 0.94. The ground cover had the highest diversity of all the strata with a value of 0.94. Poison ivy, netted chain-fern, and climbing hydrangea were the dominant species within this sampling area.

KA Area

KA Area covered a distance of approximately 2.5 miles on the Indian Grove Branch; a tributary to Pen Branch. The overstory stratum had a diversity of 0.86 with 128 specimens of 13 species occurring within the 12 plots. The understory had 80 specimens for a diversity of 0.85.

American holly, red bay, sweet bay, and tag alder were the dominant species within the shrub layer stratum of KA Area. The diversity of the shrub layer was 0.92. The ground cover for this area had an extremely high diversity of 0.96. A total of 105 species were recorded within the 42 plots that were sampled in the area. Soft rush, netted chain-fern, dogfennel, and cutgrass were the dominant species within the area.

KB Area

A total of 10 plots were conducted within KB area, an area which is subject to slow runoff and frequent flooding. The overstory stratum had a diversity of 0.80 with 66 individual specimens being measured within the area. Red maple, black gum, yellow poplar, and a species of ash were the dominant plants occurring in KB Area.

The understory stratum held a moderate diversity of vegetation (diversity of 0.67). Wax myrtle, black willow, and tag alder were the species of plants with the highest rankings in the data.

The shrub layer was less diverse than the overstory or understory (diversity of 0.51). There were 375 specimens of black willow occurring within this stratum. The ground cover, unlike the shrub layer, had an extremely high diversity of 0.95. Dominant plants were false nettle, woolgrass, spotted touch-me-not, climbing hempweed, and marsh dewflower.

KC Area

KC Area is dominated by scrub/shrub growth and has a series of braided streams which run parallel to Pen Branch. The overstory had a diversity of 0.79 with 54 individuals of 7 different species being represented. The most reoccurring species within the data were sweet gum, black gum, and red maple. In the understory, black willow tag alder, buttonbush, and American holly are the dominants for the area, which had a diversity of 0.61.

A total of 171 specimens were measured within the shrub layer for a diversity of 0.80. Again, black willow, buttonbush, and tag alder were some of the dominant plants within this stratum. The ground cover had 44 plots sample for a diversity of 0.89. False nettle had the highest measurements of relative dominance, relative frequency, and importance value.

KD Area

KD Area is similar to KC Area in that it has many braided streams occurring within the broad, flat floodplain. No overstory occurred within the stratum; therefore, all analyses of the vegetation was done by utilizing the linear transect method. Although the understory had only five species, there were 123 plants measured for

basal area coverage. The diversity was only 0.44 with the dominant species being black willow.

The shrub layer stratum had a diversity of 0.74. Black willow was again the dominant plant species. The ground layer was the most diverse of all the strata in KD Area, with a diversity of 0.92. False nettle, fireweed, and dogfennel were the dominant species within the area.

KE Area

KE Area is located within the delta of the confluence of Pen Branch and the Savannah River flood plain. Four plots were surveyed in the area, which held a total of 31 species. No overstory was present within the sampling area. The understory held only one individual. Wax myrtle, which had a basal area coverage of 18.3 sq cm, was the sole representative of the understory vegetation.

The shrub layer had three species for a diversity of 0.68. Black willow, buttonbush, and wax myrtle were moderately close in all calculations of data performed. The ground cover held a much higher diversity (0.89) with 34 species occurring within the area.

KF Area

KF Area was sampled in a manner to show the transition of vegetation from the boardwalk extending to the east. Only three species of overstory occurred within the 10 sample plots. The diversity was 0.57 for the 51 individuals of bald cypress, black gum, and water tupelo. Black willow and wax myrtle were the dominant species of the understory stratum. There were a total of 54 individuals of 4 different species in the understory to give a diversity of 0.23.

The shrub layer had a higher diversity (0.59) with 396 individuals being measured and recorded. Wax myrtle and buttonbush were the dominant plants within

this stratum. The ground cover had 68 species for a diversity of 0.93. Dominants were marsh dewflower, broad-leaf arrowhead, false nettle, and cattails.

10.3 PINE UPLANDS

HD Area

HD Area overstory had a low diversity of 0.31 for the seven species found within the five plots. Loblolly pine had 166 individuals measured, out of a total of 141 individuals for the entire area. The understory was also dominated by loblolly pine, but also had a fair representation for black cherry and wax myrtle.

The shrub layer stratum had a diversity of 0.73 for the 115 specimens measured in the area. The most dominant of the 14 species which occurred in the area was loblolly. The ground cover dominants were yellow honeysuckle, blackberry, and yellow jasmine. A high diversity of 0.83 characterizes the shrub layer in HD Area.

HE Area

HE Area is dominated by plant species which strive on the xeric soils of uplands. Loblolly pine, slash pine, and black cherry were most abundant within the five plots sampled. The diversity for the overstory was 0.59. The understory had a total of 44 specimens of 8 different species for a diversity of 0.69. Slash pine and loblolly pine were again dominant species within the area.

HE Area shrub layer held a high diversity of 0.81 for the 65 specimens of 14 distinct species measured within the 10 plots. Wax myrtle was the dominant species within this stratum. The diversity of the ground layer stratum of HE Area was 0.87. Dominants were yellow honeysuckle, yellow jasmine, and Virginia creeper.

HF Area

A total of 113 individuals of 9 different species occurred in this area for a diversity of 0.76 within the overstory. The mature forest was dominated by loblolly pine, sweet gum, and red maple. The understory had three less species than the overstory and a lower diversity (0.61).

The shrub layer for HF Area was dominated by red maple, wax myrtle, sweet gum, and loblolly pine. The diversity was the same as the overstory, 0.76. The ground cover had a diversity of 0.90 through the measuring of 17 species. Dominants were yellow honeysuckle, poison ivy, peppervine, and two species of catbriar.

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Dames & Moore appreciates the opportunity of performing the Task 14 Vegetation Sampling at SRS. Should you have any questions, please call. We will provide final copies of the report upon your approval.

Respectfully submitted,

DAMES & MOORE

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CTA/WTW:dd

END

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