POTENTIAL SITE INDEX FOR WET PINELAND SOILS OF THE COASTAL PLAIN

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[1]/Dr. Klawitter is assistant director at the Northeastern Forest Experiment Station, Forest Service, USDA, Upper Darby, Pa. Mr. Young and Mr. Case are respectively soil correlator for interpretations and regional forester at the South Region Technical Service Center, Soil Conservation Service, USDA, Fort Worth, Texas.

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THE PROBLEM

IN THE SOUTH, large areas of coastal plain land that could produce pine forests have been left unmanaged because of the wetland soils. In some places, conventional wheel or track vehicles cannot be used to harvest valuable stands of timber. In other places, large forested areas subject to disease, insect, or fire damage are inaccessible, so that timber cannot be salvaged and further losses cannot be prevented.

Early water-management efforts in these wet lands were designed primarily to improve access to large tracts of timber land. Since 1950, water levels have been altered on more than 2 million acres of wetland forest soils. With water management and heavy equipment, roads can be built, timber can be harvested, and eventually sites can be prepared and planted. As shown by records of early survival and growth 2/water management greatly improves the chances of plantation establishment.

Most water management on wet lands has been justified on the basis of immediate returns from salvaged timber, cheaper protection, and reduced costs of reforestation. However, economic evaluations of expected returns from investments on wetland sites are hampered seriously by lack of information about potential site indexes; and as a result many acres that could be growing timber to meet future needs may be left idle.

The big question is, "With water management, what can be expected in site indexes of wet pine lands?"

This report has been prepared to present information about the soil, water, and tree characteristics of some wetland soils that are capable of producing pine forests.

2/ *Klawitter, Ralph A. Woodland drainage in the Southeast. J. Soil and Water Conserv. 20 (4): 181-182. 1965.*

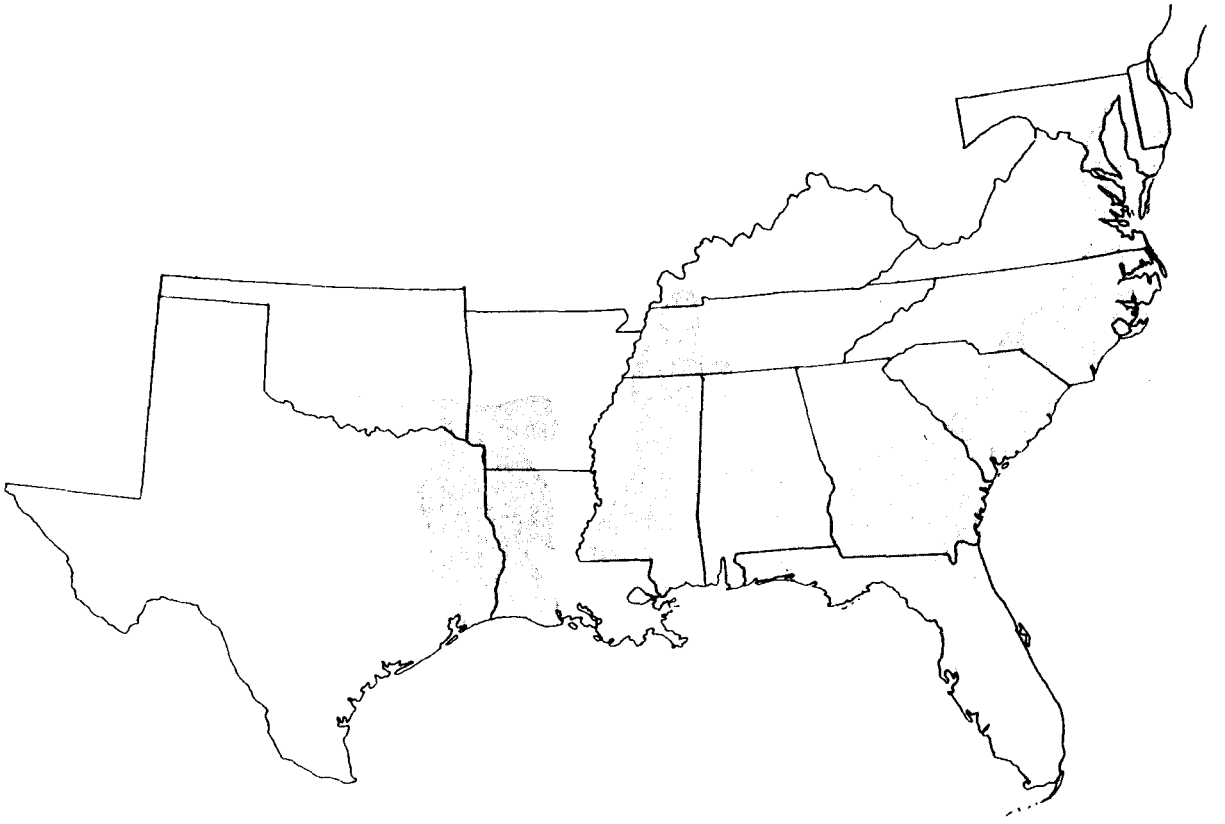

Figure 1: Coastal plain section where wet pineland soils are found.

OBJECTIVES AND SCOPE

One of the objectives of this study was to identify the soil series that are a part of the wet pineland forests of the Coastal Plain (fig. 1). The combined experience of soil scientists and foresters in each State of the South Region Soil Conservation Service was used in reviewing established and tentative soil series. The list compiled (table 1) -- an alphabetical listing of 103 series -- is complete to 25 September 1968. Natural vegetation of some series is primarily hardwoods, but in all series pine trees were found as a component of the forest. A few series are typically covered with grasses or sedges, and only scattered pines are located on them.

Another objective was to estimate the potential site index of each soil series for loblolly pine (Pinus taeda L.) and/or slash pine (P. elliottii Engelm.). Data for this estimate came from soil-site measurements and observational experience of State forestry organizations, the Soil Conservation Service, and the Forest Service. The potential site indexes represent the growth achieved where surface and ground water levels were adequate but not excessive. (fig. 2). Trees measured were healthy, vigorous, and dominant or codominant. Where a soil series had not been evaluated, its potential was extrapolated from similar soils in the same family or subgroup. Extrapolated values are designated in table 2 by an asterisk.

The final objective was to list soil, water, and geographic information that could aid forest managers, soil scientists, engineers, and others in evaluating the importance of the series to forestry; and to estimate the extent to which soil and water improvement measures might be needed. It was anticipated that this report would be particularly useful to watershed planners in developing their estimates of the input and output required for soil, water, and plant management on wetland forests of the southern Coastal Plain.

INFORMATION PRESENTED

The basic information for each soil series has been arranged in a table, which follows this section. Each column is explained briefly in this section to aid the reader's understanding of the utility and limitations of the data.

Soil Classification – Column 1

Series are arranged sequentially and alphabetically, followed by the family to subgroup in accordance with the Comprehensive System of Soil Classification as follows:

a. Series. --A collection of soil individuals essentially uniform in differentiating characteristics and in arrangement of horizons; or, if genetic horizons are thin or absent, a collection of soil individuals that, within defined limits, are uniform in all soil properties diagnostic for series. Soil individuals are real things, but series are conceptual.

b. Families. -- Differentiated within a subgroup primarily on the basis of properties important to the growth of plants. They are relatively homogeneous with respect to soil-air, soil-water, and plant-root relationships, and to nutrient-supplying capacities for the major elements other than nitrogen; and they might be expected to respond similarly to treatment.

c. Subgroups. --Subdivisions of great groups, these can be defined only in terms of reference to the great groups. Each great group is defined largely on the presence or absence of diagnostic horizons and the arrangement of those horizons.

Potential Pine Site Indexes -- Column 2

Values for slash pine are for an average total height in feet at 50 years of age, utilizing the curves in Miscellaneous Publication 50.[3] Those for loblolly pine are based upon the curves of Coile and Schumacher.[4] Where site index is shown for only one pine species, the other does not usually occur on series because of some environmental factor that limits natural distribution, or for some other reason.

The range of values is the potential with sufficient water management to reduce the average growing season groundwater level to about 24 inches below the surface. As a rule, a more intensive water-management program should result in greater productivity than a less intensive program on a particular series when other soil variables remain constant. Even with a prescribed intensity of water management, however, the level of productivity for pine that is attained will depend upon how local soil conditions differ from those listed in the table. Obviously, a soil with a shallower surface layer, less favorable position, and poorer drainage and water characteristics than those described will not be capable of growing trees as well as one with more favorable soil and water characteristics for the same level of water management.

What remedial soil and water measures – or indeed, whether or not any should be applied – is a matter to be decided in the field. Thus the application of the information in the tables will usually require the combined training and experience of a forester, a soil scientist, and an engineer to properly evaluate local site conditions and to prescribe a water and soil management program that will be capable of satisfying the landowner's management, policy, and investment objectives.

Nature and Thickness of Important Soil Layers – Column 3

Soil characteristics emphasized include the range in thickness, color, and texture of the surface soil layer, the nature and thickness of important subsurface layers, and the soil profile reaction. These are soil properties that help to define the amount and quality of growing space available for pine tree roots. They can be used to evaluate more closely where the ex-

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[3]/Volume, yield and stand tables for second-growth southern pines, U.S. Dep. Agr. Misc. Pub. 50 202pp. 1929.

[4]/Coile, T. S., and F. X. Schumacher. Site Index of young stands of loblolly and shortleaf pines in the Piedmont Plateau Region. J. Forestry 51: 432-435. 1953.

pected site index of a soil type should fall in relation to the range in site index for a soil series. Further information that might be helpful in the use of the data in this column is covered in the following publications:

1. Coile, T. S., Soil and the growth of forests, Adv. Agron. 4:329-398, 1952;

2. Coile, T. S., Soil productivity for southern pines. Forest Farmer 11 (7):10-11 and 13; 11(8):11-12, 1952;

3. Barnes, Robert L., and Charles W. Ralston, Soil factors related to growth and yield of slash pine plantations. Fla. Agr. Exp. Sta. Bull. 559, 23 pp., 1955;

4. Zahner, Robert, Mapping soils for pine site quality in south Arkansas and north Louisiana. J. Forestry 55:430-433, 1957;

5. Zahner, Robert, Site quality of pine forests in southern Arkansas and northern Louisiana, Forest Sci. 4:162-176, 1957.

Index to Natural Fertility -- Column 4

The index to natural fertility refers to the relative values of fertility factors important in the production of pine trees. Specifically, cation exchange capacity, base saturation, and calcium status are factors that give an index to the natural fertility of a soil. Most of the nutrient elements can be expected to come from the upper 20 inches of the wet pineland soils considered here.

(a) Cation exchange capacity (C.E.C.)

Level	Milliequivalents/100 grams of soil
Low	Less than 5.5
Medium	5.6 to 15.2
High	Over 15.3

(b) Base saturation (Base Sat.)

Level	Percent
Low	0 to 33
Medium	34 to 66
High	67 to 100

(c) Level

Level refers to a composite rating of cation exchange capacity, base saturation, and calcium status into a general level of natural soil fertility. It is expressed as low, medium, or high or some combination of these three levels.

Position and Slope -- Column 5

The approximate range of slopes represented by the slope terms are listed below:

Term	Percent
Level	0 to 1/2
Nearly level	1/2 to 1
Very gently sloping	1 to 3
Gently sloping	3 to 5
Sloping	5 to 8
Strongly sloping	8 to 12

Drainage Class -- Column 6

(a) Very poorly drained. --Water is removed from the soil so slowly that the water table remains at or on the surface the greater part of the time.

(b) Poorly drained.--Water is removed so slowly that the soil remains wet for a large part of the time.

(c) Somewhat poorly drained.--Water is removed from the soil slowly enough to keep it wet for significant periods but not all the time.

(d) Moderately well drained.--Water is removed from the soil somewhat slowly, so that the profile is wet for a small but significant part of the time.

Generally, the poorer the drainage class, the greater the response to water management.

Water Table Levels During the Growing Season-- Column 7

Estimates are given on the depth, duration, and frequency of water levels for each soil series. In addition, phases of series are rated separately wherever they are recognized. Moreover, whether surface water is stagnant or flowing is also noted. Generally, the higher the water table, the greater the response to water management.

Hydraulic Conductivity of Top 30 Inches -- Column 8

Hydraulic conductivity is the ratio of the flow velocity of a specified liquid to the driving force for the viscous flow under saturated conditions in a porous medium. In this case, water is the specified liquid, and the soil profile is the porous medium. The value is particularly useful in the design of a water-management system, especially the depth and spacing of ditches.

Conductivity	Rate (inches/hour)
Very slow	< 0.06
Slow	0.06 – .20
Moderately slow	.20 – .63
Moderate	.63 – 2.0
Moderately rapid	2.0 – 6.3
Rapid	> 6.3

Importance--Column 9

(a) Extent and size--

Approximate extent	Acres
Small	Less than 10,000
Medium	10,000 to 100,000
Large	More than 100,000

Size of areas	Acres
Small	Less than 10
Medium	10 to 200
Large	More than 200

(b) Distribution.--Refers to the States or parts of a State where the series has been identified or can be expected to occur.

(c) Proportion under native vegetation.--Refers to the percentage of the series that is not now cleared and used for agricultural or other purposes.

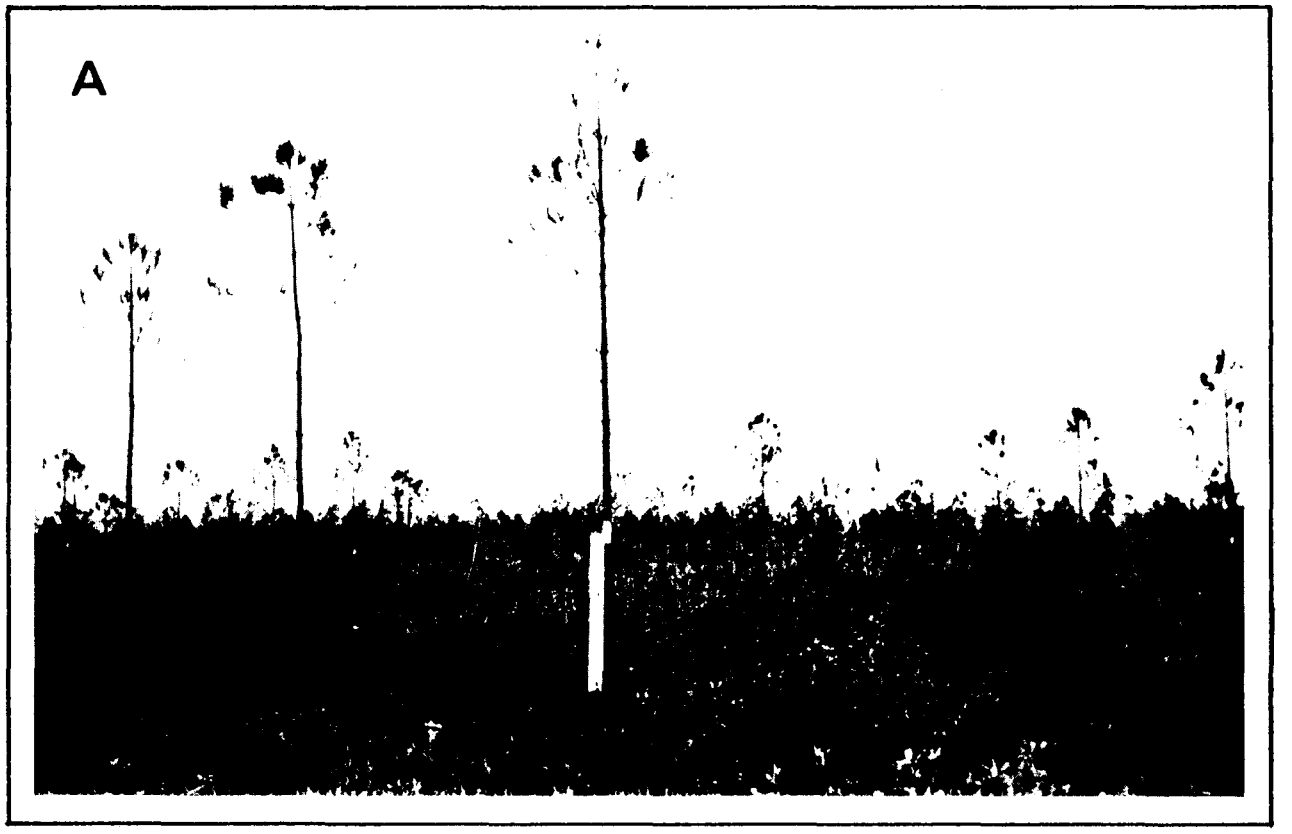

Figure 2: (A) Slash pine on wet, sandy site before treatment;
(B) Same trees three years after ditches were installed to lower soil water levels.

Table 1.--Soil Series that are part of the wet pineland forests of the Coastal Plain

Series	Series	Series	Series
Adamsville	Coxville	Lynchburg	Quitman
Alapaha	Crowley	Lynn Haven	Rains
Albany	Dawhoo	Manatee	Rutlege
Ardilla	Delks	Mantachie	St. Johns
Arzell	Delray	Mascotte	Santee
Astor	Dunbar	Mashulaville	Scranton
Atmore	Edisto	Mayhew	Sellers
Augusta	Edna	Meggett	Sorter
Barclay	Elkton	Myakka	Splendora
Barth	Elred	Myatt	Springfield
Basinger	Felda	Nahunta	Stono
Bayboro	Fellowship	Ocilla	Stough
Bibb	Fort Drum	Olustee	Summerfield
Bladen	Grady	Ona	Sunniland
Blichton	Henry	Osier	Torhunta
Bradenton	Hyde	Panasoffkee	Tuckerman
Broward	Immokalee	Pansey	Verona
Bude	Johnston	Pantego	Wabasso
Byars	Kanapaha	Parkwood	Wadmalaw
Caddo	Kiawah	Pasquotank	Wahee
Calhoun	Leaf	Pelham	Waller
Calloway	Leefield	Pheba	Weeksville
Charlotte	Lenoir	Placid	Weston
Chastain	Leon	Plummer	Wrightsville
Clodine	Liddell	Pompano	Yonges
Copeland	Lumbee	Portsmouth	

Table 2. WET PINELAND SOILS OF THE COASTAL PLAIN AND SOME CHARACTERISTICS SIGNIFICANT IN THEIR MANAGEMENT FOR PINE TREES

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships: Drainage class	Natural water relationships: Water table levels during the growing season	Hydraulic conductivity of top 30 inches	Importance
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Adamsville 2. Siliceous, hyperthermic uncoated 3. Aquic Quartzipsamments	--/77-92	4" to 20" dark gray to dark grayish brown fine sand over grayish brown to very pale brown fine sand mottled with gray or yellow. Below 28" is light gray to white fine sand. Profile is slightly acid to mildly alkaline.	1. Medium 2. Medium 3. >1 4. Medium	Level broad flats less than 2 feet higher in elevation than adjacent sloughs.	Somewhat poorly drained.	Water table rises to within 5 inches of the soil surface approximately 1 to 10 times during the growing season and remains there for about 1 to 4 days each time.	6.3	1. Medium 2. Southern Fla. 3. 25 percent
1. Alapaha 2. Loamy, siliceous thermic 3. Arenic Plinthic Paleaquults	*77-93/77-93	20"-40" black and dark gray loamy sand over light gray sandy dry loam mottled with brown Common, soft plinthite at less than 65". Profile is strongly to very strongly acid.	1. Low 2. Low 3. >1 4. Low	Level to nearly level depressions small drains and seepage slopes.	Poorly drained.	Water conditions vary from as much as 5 inches of flowing water over the surface to a water table depth of about 20 inches depending upon climatic conditions. The upper surface of the free water table is frequently within 15 inches of the surface	0.20 - 0.63	1. Medium extent, medium area 2. Ga., Ala., Fla., N.C., S.C. 3. 85 percent
	FEET						INCHES/HOUR	
1. Albany 2. Loamy siliceous thermic 3. Grossarenic Paleudults	* 72-88 72-88	40"-60" brownish yellow loamy sand over mottled brown, gray and yellow sandy clay loam. Profile strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Level to gently sloping flats.	Somewhat poorly drained.	Water levels vary from as much as 5 inches of flowing water over the surface to a water table depth of about 20 inches. Frequency of high and low water levels is from 1 to 10 times a season depending upon rainfall	2.0 - 6.3	1. Medium extent, medium areas 2. Ga., Fla., Tex., perhaps S.C., etc. 3. 60 percent
1. Ardilla 2. Fine-loamy, siliceous, thermic 3. Plinthaquic Paleudults	80-95/80-95	5"-12" dark grayish brown fine sandy loam grading to yellowish brown sandy clay mottled with gray. 5 to 50 percent soft plinthite below 40". Profile is strongly and very strongly acid.	1. Low to medium 2. Low to medium 3. <1 4. Low to medium	Level to gently sloping uplands.	Somewhat poorly drained.	Water levels very seldom occur in the top 5 inches of this soil ranging mostly below 6 inches with the depth depending upon the occurrence of wet and dry periods.	0.63 - 2.0	1. Medium extent, medium areas 2. Ala., Ga., Fla., N.C., S.C. 3. 85 percent
1. Arzell 2. Siliceous, hyperthermic uncoated 3. Aquodic Quartzipsamments	FEET -/72-88*	2" to 5" light gray fine sand or sand over white or light gray sand. Below 39 inches is brown fine sand or sand. Profile is slightly acid to mildly alkaline. May have limestone below 50".	1. Low 2. Medium to high 3. <1 4. Low	Level to nearly level areas and small rather widely scattered depressions and sloughs.	Poorly drained.	Water levels remain high, flooding as much as 5 inches over the surface for periods from 5 to 30 days a number of times each growing season.	INCHES/HOUR >6.3	1. Medium extent 2. Southern Fla. 3. 20 percent
1. Astor 2. Sandy, siliceous noncalcareous 3. Cumulic Haplaquolls	* /80-95	More than 40" of black and very dark grayish brown sand or fine sand. Profile is slightly acid at top to moderately alkaline below.	1. Medium 2. Medium to high 3. >1 4. Medium	Nearly level depressions or drains.	Very poorly drained.	Water table is within a depth of 10 inches for more than 6 months most years. May flood the surface after heavy rains.	>6.3	1. Small extent, small areas 2. Southern Fla. 3. 90 percent
1. Atmore 2. Coarse-loamy siliceous thermic 3. Plinthic Fragiaquults	* FEET 77-92/75-90	10" to 24" light gray fine sandy loam over mottled gray and yellow silt loam. Below 30" mottled yellow red and gray brittle silt loam fragipan with 5-25 percent nonindurated plinthite. Profile extremely to strongly acid throughout.	1. Low to medium 2. Low 3. >1 4. Low	Nearly level flats.	Poorly drained.	Water stands close to or above the soil surface for periods of as long as a month several times each growing season.	INCHES/HOUR .63-2.0	1. Medium extent medium areas 2. Ark., Ala., La., Miss., Texas 3. 55 percent
1. Augusta 2. Fine-loamy, mixed, thermic 3. Aeric Ochraquults	80-96/-	5"-10" dark grayish brown loam over mottled gray and brown sandy clay loam. Below 40" color is dominantly gray with brown mottles, sandy clay loam texture. Profile is strongly acid to medium acid throughout.	1. Medium 2. Medium 3. >1 4. Medium	Nearly level stream terraces in Piedmont Plateau and elsewhere.	Somewhat poorly drained.	Water levels range from 6 to 20 inches below the surface, except when the soil is submerged by up to 20 inches of flowing water 1 or more times each growing season on the average.	0.63-2.0	1. Medium extent, small areas 2. Ga., S.C., N.C., Va., Ala. 3. 60 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Barclay 2. Coarse-silty mixed, thermic 3. Aquic Dystrochrepts	78-94/	9" to 18" dark gray to pale brown very fine sandy loam over light yellowish brown very fine sandy loam mottled with gray. Below 40" is gray sand to clay loam. Profile is strongly acid.	1. Low to medium 2. Medium 3. >1 4. Medium	Level to nearly level areas.	Somewhat poorly drained.	Water table ranges up into the 6 to 20 inch soil level for from 1 to 4 days several times each growing season.	0.63-2.0	1. Medium extent small areas 2. N.C., Va., possibly N.J., Md. 3. 25 percent
1. Barth 2. Sandy, siliceous thermic 3. Aquic Psammentic Paleudults	*74-90/74-90*	20"-40" gray fine sand over strong brown loamy fine sand containing red weakly cemented sandy loam nodules and mottled with grayish brown. Profile is strongly acid to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Level to gently sloping terraces along major streams.	Somewhat poorly drained.	Water table reaches as high as 6 to 20 inches below the soil surface for from 5 to 30 days several times each growing season.	2.0-6.3	1. Small extent, medium areas 2. Ga., S.C., N.C., Fla., Ala., Miss. 3. 90 percent
	FEET						INCHES/HOUR	
1. Besinger 2. Siliceous, hyperthermic, uncoated 3. Aquodic Quartzipsamments	-72/88	2" to 8" very dark gray fine sand or sand over white or light gray sand or fine sand. Below 20" is grayish brown to dark brown sand. Profile is strongly acid.	1. Low 2. Medium 3. <1 4. Low	Level to nearly level drains.	Poorly drained.	Water levels reach the soil surface and remain there from 1 to 4 days several days each growing season.	> 6.3	1. Medium extent 2. Southern Fla. 3. 20 percent
1. Bayboro 2. Clayey, mixed, thermic 3. Typic Umbric Paleaquults	87-103/87-103	9"-20" black or very dark gray loam over gray very plastic clay. May be sandy substratum. Profile strongly to very strongly acid.	1. High 2. Low to medium 3. >1 4. Medium to high	Level to slightly depressed areas.	Very poorly drained.	Stagnant water stands on the surface for from 5 to 30 days 1 or more times a year, occasionally reaching depths of up to 20 inches during very wet periods. Normally, however, the water table is 6 or more inches below the soil surface during the growing season.	.06 - .20	1. Medium extent, medium area 2. Md., Va., N.C., S.C., Ga., Fla., Ala., Miss. 3. 80 percent
	FEET						INCHES/HOUR	
1. Bibb 2. Coarse-loamy, siliceous, acid thermic 3. Typic Haplaquents	84-100/82-98	3" to 5" dark gray, fine sandy loam over gray and brown mottled fine sandy loam. Below 28" are beds of sands or clay loams. Profile is strongly acid to very strongly acid.	1. Low to medium 2. Medium 3. >1 4. Medium	Level to nearly level drains and bottoms subject to overflow.	Poorly drained.	Overflow of from 6 to 20 inches or more in depth covers the soil for from 1 to 4 days 1 or more times each growing season. For from 5 to 30 days the water level ranges from 5 inches above the soil surface, to the soil surface, only occasionally dropping to deeper depths. A ponded phase has a fluctuating water level ranging between 5 inches below to 5 inches above the soil surface several times a season, depending upon rainfall.	0.63 to 2.0	1. Medium extent medium areas 2. Ala., Ark., Fla., Ga., La., Miss., N.C., Okl., S.C., Tenn., Tex., Va. 3. 95 percent
	FEET						INCHES/HOUR	
1. Bladen 2. Clayey, mixed, thermic 3. Typic Albaquults	*86-102/85-100*	4" to 9" black fine sandy loam grading to gray very plastic clay at 15". Profile strongly acid to very strongly acid.	1. Medium to high 2. Medium 3. <1 4. Medium	Level flats and drains.	Poorly drained.	Water flows over the soil surface for periods of from 5 to 30 days 1 or more times each season. As a rule, the water table is 6 to 20 inches below the soil surface when unflooded.	.06-.20	1. Large extent, medium areas 2. Ga., S.C., Ala., N.C., possibly Miss. and Va. 3. 85 percent
1. Blichton 2. Loamy, siliceous, hyperthermic 3. Arenic Plinthic Paleaquults	/82-98	20"-40" grayish brown loamy fine sand over gray sandy clay loam mottled with yellow, brown and red. Common soft plinthite and many weathered phosphate pebbles. Profile is medium to strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level to gently sloping.	Somewhat poorly drained.	Water levels range as high as 6 to 20 inches in the soil for from 5 to 30 days several times each growing season.	0.63-2.0	1. Medium extent, small areas 2. Southern Fla. 3. 70 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships: Drainage class	Natural water relationships: Water table levels during the growing season	Hydraulic conductivity of top 30 inches	Importance
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
1. Bradenton 2. Coarse-loamy mixed, hyperthermic 3. Typic Ochraqualfs	FEET /62-78	8" to 20" very dark gray and grayish brown fine sand over gray fine sandy loam. Below 26" is white calcareous fine sandy loam. Profile reaction varies from slightly or medium acid in upper part to mildly alkaline below.	1. Low to medium 2. Medium 3. <1 4. Low to medium	Nearly level low lying ridges and hammocks.	Poorly drained.	Water levels range as high as the soil surface to 5 inches below for from 5 to 30 days several times each growing season.	INCHES/HOUR 2.0-6.3	1. Small extent, small areas 2. Southern Fla. 3. 85 percent
1. Broward 2. Siliceous, hyperthermic, uncoated 3. Aquic Quartzipsamments	-/72-88*	3 to 8" dark gray fine sand over grayish brown sand or fine sand. Below 20" to 40" hard rock occurs. Profile is slightly acid to mildly alkaline.	4. Low to medium	Level to very gently sloping areas	Somewhat poorly drained.	Water levels range as high as 6 to 20 inches below the soil surface for from 5 to 30 days several times each growing season.	> 6.3	1. Small extent 2. Southern Fla. 3. 25 percent
1. Bude 2. Mine-silty, mixed, thermic 3. Glossaquic Fragiudalfs	* FEET 80-96/80-96	4"-10" mottled in shades of brown silt loam over yellowish brown heavy silt loam with gray mottles. Between 18" and 40" mottled gray and brown brittle silt loam fragipan. Profile is strongly to very strongly acid.	1. Low to medium 2. Low to medium 3. >1 4. Medium	Level to gently sloping uplands.	Somewhat poorly drained.	Water levels seldom stand on the soil surface but do reach up to the soil surface to 5 inches below several times for periods of from 1 to 4 days. The 6 to 20 inches zone in the soil remains saturated for from 5 to 30 days frequently during the growing season.	INCHES/HOUR 0.20-0.63	1. Medium extent, medium areas 2. Ark., La., Miss., Mo., Tenn. 3. 75 percent
1. Byars 2. Clayey, kadlinitic, thermic 3. Typic Umbric Paleaquults	FEET 87-103/	10"-20" black loam or clay loam over gray plastic clay. Below 70" may be sand to clay. Profile strongly to extremely acid.	1. Medium to high 2. Low to medium 3. >1 4. Medium	Nearly level areas and slight depressions.	Very poorly drained.	Standing Water remains over the soil surface as much as 20 inches in depth for most of the growing season.	INCHES/HOUR .06-.20	1. Medium extent small areas 2. Ala., Ark., Ga., Fla., Miss., N.C., S.C., Va. 3. 95 percent
1. Caddo 2. Fine-silty siliceous, thermic 3. Typic Glossaqualfs	78-93/	20" to 40" light brownish gray silt loam tonguing into light brownish gray heavy silt loam or silty clay loam mottled with brown and red. Profile is very strongly to medium acid.	1. Low to medium 2. Low 3. <1 4. Low	Nearly level to level terraces with circular mounds common.	Poorly drained.	Very seldom does water stand on the soil surface. It occurs from the soil surface to 5 inches below for a few days 1 or more times, from 6 to 20 inches for 5 to 30 days much of the time.	0.20-0.63	1. Medium extent, large areas 2. La., Tex., Ark. 3. 80 percent
1. Calhoun 2. Fine-silty, mixed, thermic 3. Typic Glossaqualfs	* FEET 82-98/	12" to 24" light gray silt loam tongues into light silty clay loam. Below 48" is silt loam. Profile is strongly to very strongly acid. May range to neutral in the lower part.	1. Medium 2. Medium 3. <1 4. Medium	Nearly level depressions or flats.	Poorly drained.	Perched water stands on the surface for periods of from 5 to 30 days 1 or more times each growing season and only occasionally flows over the soil more deeply. Water levels frequently stay within 5 inches of the surface for 5 to 30 day periods.	INCHES/HOUR 0.06-0.20	1. Large extent large areas 2. La., Ark., Miss., and possibly Tenn. 3. 85 percent
1. Calloway 2. Fine-silty, mixed, thermic 3. Aqueptic Fragiudalfs	FEET 80-9?/	20"-30" grayish brown and yellowish brown mottled silt loam over mottled grayish brown and brownish yellow brittle silt loam fragipan. Profile is medium to strongly acid.	1. Low to medium 2. Low to medium 3. 1 4. Medium	Nearly level to gently sloping terraces.	Somewhat poorly drained.	A water table, perched above the 20 inch depth, stands on the soil surface for a few days several times each season. The top 20 inches of soil remains saturated for from 5 to 30 days 1 or more times each season, depending upon rainfall.	INCHES/HOUR 0.20-0.63	1. Medium extent medium area 2. Ark., La., Miss., Mo., Tenn. 3. 25 percent
1. Charlotte 2. Sandy, siliceous hyperthermic 3. Entic Sideraquods	/77-83*	5" to 24" dark gray fine sand over brownish yellow, iron rich, fine sand. Below 46" is white fine sand. Profile slightly acid to moderate alkaline. Shells may be present below 40".	1. Low 2. Medium 3. <1 4. Low	Nearly level poorly defined drains.	Poorly drained.	When rainfall is heavy, the water table will stay above the soil surface for periods of from 5 to 30 days several times each growing season.	>6.3	1. Medium extent, medium areas 2. Southern Fla. 3. 15 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water conditions: Drainage class	Natural water conditions: Water table levels during the growing season	Hydraulic conductivity of top 30 inches	Importance
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
Clastain 2. Fine, Koolinitic acid, thermic 3. Fluventic Haplaquepts	FEET 82-98/82-98*	3" to 10" dark grayish brown silty clay loam over grayish brown clay mottled with yellow and brown. Profile is medium to strongly acid.	1. High 2. Medium 3. > 1 4. High	Level to nearly level bottoms that overflow frequently.	Poorly drained.	Water flows over the soil surface for a few days several times each growing season, reaching depths of over 20 inches. Groundwater remains within 5 inches of the surface for as long as a month and drops 20 inches below the soil surface during the dry season. The ponded phase of this soil seldom floods more deeply than 5 inches above the soil surface.	INCHES/HOUR .06-.20	1. Medium extent, large areas 2. Ala., Ga., Fla., S.C.
. Clodine 2. Fine-loamy, mixed, thermic 3. Typic Ochraqualfs	FEET 82-98/	7" to 20" dark gray loam over gray light clay loam. Profile is slightly acid to moderately alkaline.	1. Medium 2. Medium 3. > 1 4. Medium	Level, broad flats.	Poorly drained.	Slowly moving water covers the surface to 5 inches in depth for a week or more several times a season, occasionally becoming deeper with heavy rains. The top 5 inches of soil are saturated from 5 to 30 days several times and the lower depths for longer.	INCHES/HOUR 0.20-0.63	1. Large extent large areas 2. Tex., La., Ala., Ga., S.C. 3. 50 percent
. Copeland 2. Fine-loamy, mixed, non-calcareous, hyperthermic 3. Typic Arridaquolls	/98-103*	10" to 20" neutral, black loamy fine sand over moderately alkaline gray fine sandy clay loam. Below 30" is hard limestone.	1. Medium 2. High 3. > 1 4. Medium to High	Level or slight depressions.	Very poorly drained.	Water levels rise to the soil surface several times a season and remain there for periods of from 5 to 30 days.	0.63-2.0	1. Small extent small areas 2. Southern Fla. 3. 85 percent
. Coxville 2. Clayey, kaolinitic, thermic 3. Typic Paleaquults	FEET 82-98/80-95	5" to 12" dark gray fine sandy loam grading to gray plastic sandy clay at 14". Profile is strongly to very strongly acid.	1. Low to medium 2. Low 3. < 1 4. Low	Nearly level flats to slight depressions.	Poorly drained.	Water levels range from 5 inches below to 5 inches above the soil surface for several days from 1 to 10 times a season, depending upon rainfall conditions. The 6 to 20 inch level in the soil remains saturated for as long as 30 days several times a season, with deeper depths remaining saturated even longer.	INCHES/HOUR 0.20-0.63	1. Large extent, large areas 2. N.C., S.C., Ga., Fla., Ala., Miss. 3. 80 percent
1. Crowley 2. Fine, montmorillonitic, thermic 3. Typic Albaqualfs	FEET 87-103/	12" to 25" gray silt loam over gray heavy silty clay loam. Profile very strongly acid to medium acid in upper part and neutral to moderately alkaline below.	1. High 2. High 3. > 1 4. High	Nearly level to level flats.	Poorly drained.	Very seldom does water flow over the surface for as long as a day. It remains in the top 5 inches of soil for only a few days 1 or more times each season, but stays for as long as 30 days at the 6 to 20 inch level.	INCHES/HOUR < .06	1. Large extent large areas 2. La., Ark., Tex. 3. 15 percent
1. Dawhoo 2. Sandy, siliceous thermic 3. Typic Humaquepts	78-93/78-93	13" to 24" black to very dark grayish brown loamy fine sand over dark-grayish brown loamy fine sand. Profile is slightly acid.	1. Low to medium 2. Medium 3. < 1 4. Medium	Level depressions on low marine terraces 5 to 20 feet above sea level.	Very poorly drained.	From 6 to 20 inches of water stands on the soil surface for as long as 30 days at a time from 10 to 25 times a growing season.	> 5.3	1. Medium extent small areas 2. S.C., possibly Fla., Ga., and other Atlantic and Gulf coast states 3. 80 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Delks 2. Sandy, siliceous hyperthermic, sortstein 3. Ultic Haplaquods	-/70-85	25" to 35" grayish sand over mottled brown, yellow and red cemented sand pan. Below 50" is gray sandy clay.	1. Low 2. Low 3. <1 4. Low	Nearly level flats in the coastal plain.	Somewhat poorly drained.	Water levels rise 1 or more times a season to within 5 inches of the soil surface and remain there from 1 to 4 days.	0.20 to 0.63	1. Small extent small areas 2. Central Fla. 3. 85 percent
1. Delray 2. Loamy, mixed, noncalcareous, hyperthermic 3. Crossarenic Argiaquolls	/84-100	20" to 24" black loamy fine or fine sand over gray fine sand or sand. About 46" is grayish brown sandy loam or sandy clay loam. Profile slightly acid to mildly alkaline. Layers of shells or limestone may underlie these soils.	1. Medium to high 2. Medium 3. >1 4. Medium to high	Nearly level broad flats or depressions.	Very poorly drained.	Water stands from 6 to 20 inches deep over the soil surface 1 or more times each growing season.	> 6.3	1. Small extent, small areas 2. Southern Fla. 3. 80 percent
	FEET						INCHES/HOUR	
1. Dunbar 2. Clayey, kaolinitic 3. Aeric Paleaquults	80-96/80-96	5"-12" dark gray sandy loam over light olive brown and grayish brown mottled clay loam or sandy clay. Profile is strongly to very strongly acid.	1. Medium 2. Low 3. <1 4. Medium	Nearly level flats, small depressions, and gently sloping areas.	Somewhat poorly drained.	Water levels are within 5 inches of the soil surface for from 1 to 4 days several times a season, within 20 inches of the surface for as long as 30 days 1 or more times a season.	0.20-0.63	1. Large extent medium areas 2. Va., N.C., S.C., Ga., Fla., Ala., Miss. 3. 30 percent
1. Edisto 2. Coarse-loamy, siliceous thermic 3. Glossaquic Aqueptic Fragiudalfs	85-105/	12" to 16" dark grayish brown loamy fine sand over light olive brown fine sandy loam mottled with yellowish brown. At 20" to 40" is mottled brown and gray brittle fine sandy loam. Profile is medium to very strongly acid.	1. Low 2. Medium 3. <1 4. Low	Level to nearly level flats.	Somewhat poorly drained.	Water levels remain below 20 inches in the soil during most of the growing season.	2.0 - 6.3	1. Medium extent, medium areas 2. S.C., possibly N.C., Ga. 3. 25 percent
	FEET						INCHES/HOUR	
1. Edna 2. Fine, montmorillonitic, thermic 3. Vertic Albaqualfs	82-98/-	4" to 10" dark gray loam over gray very fine clay. Below 40" sandy clay loam. Profile slightly to medium acid in upper layers and neutral to moderately alkaline below.	1. High 2. High 3. >1 4. High	Nearly level broad flats.	Poorly drained.	Perched water table with water on the surface for from 5 to 30 days 1 or more times a season. Only occasionally does the soil dry out below 20 inches in depth.	0.06 - 0.20	1. Large extent medium areas 2. Texas 3. 35 percent
	FEET						INCHES/HOUR	
1. Elkton 2. Clayey, mixed, mesic 3. Typic Ochraquults	75-90/75-90	4"-7" gray silt loam grading to gray plastic silty clay at 10". Below 40" sendy horizons may occur. Profile is stongly to extremely acid.	1. Medium to high 2. Low to medium 3. >1 4. Medium	Level to nearly level broad flats.	Poorly drained.	Water saturates the soil to a few inches above the surface early in the growing season and then declines: remaining above the surface for a few days, at the 0 to 5 inch level in the soil for more than 30 days, at the 6 to 20 inch level in the soil for from 5 to 30 days, and below 20 inches in the soil the balance of the growing season.	.06 - .20	1. Small extent medium areas 2. Md., Del., N.J., Va. 3. 75 percent
	FEET						INCHES/HOUR	
1. Elred 2. Sandy over loamy, siliceous hyperthermic 3. (Alfic) Sideraquods	/67-83	6" to 14" very dark gray fine sand over brown loose fine sand. At 30" is brownish yellow iron rich sand or fine sand underlain by sandy loam. Below 48" is loose fine sand. Profile is slightly acid to mildly alkaline.	1. Low 2. Medium 3. <1 4. Low	Nearly level low upland ridges on poorly defined drains.	Poorly drained.	Water table rises to within 5 inches of the soil surface several times a growing season and remains there from 1 to 4 days each time.	2.0-6.3	1. Medium extent, small areas 2. Southern Fla. 3. 70 percent
1. Felda 2. Loamy, mixed, hyperthermic 3. Arenic Ochraqualfs	/72-88	20" to 40" light gray fine sand over gray fine sandy loam or sandy clay loam. Below 40" texture ranges from sand to loamy sand. Profile is medium acid to moderately alkaline.	1. Low 2. Medium 3. <1 4. Low	Nearly level depressions or poorly defined drains.	Poorly drained.	The water table covers the surface up to 5 inches deep 1 or more times a growing season and remains there for from 5 to 30 days.	2.0 - 6.3	1. Large extent, medium areas 2. Southern Fla. 3. 25 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Fellowship 2. Fine, montmorillonitic, hypertermic 3. Typic Umbraqualfs	-/87-103	10" to 15" black loamy fine sand over gray sandy clay with many weathered phosphate concretions. Profile is medium to very strongly acid.	1. Medium 2. Medium 3. > 1 4. Medium	Nearly level to sloping areas.	Somewhat poorly drained.	The water table rises to the 6 to 20 inch zone in the soil 1 or more times a growing season and remains there from 5 to 30 days each time.	0.06-0.20	1. Small extent small area 2. Southern Fla. 3. 70 percent
1. Fort Drum 2. Sandy, siliceous hyperthermic 3. Aeric Haplaquepts	/72-88*	4" to 8" dark gray, strongly acid fine sand over brown, slightly acid fine sand or sand. At 20 to 30" is white, soft, calcareous fine sandy loam. Below 30" is yellowish brown sand.	1. Low 2. Medium 3. < 1 4. Low	Nearly level low ridges and flats that border sloughs and depressions.	Somewhat poorly drained.	The water table rises to within 5 inches of the soil surface several times a growing season and remains there from 1 to 4 days each time.	2.0 - 6.3	1. Small extent, small areas 2. Southern Fla. 3. 60 percent
	FEET						INCHES/HOUR	
1. Grady 2. Clayey, kaolinitic, thermic 3. Typic Paleaquults	82-98/80-95	3" to 6" black clay loam over gray sticky clay mottled with red or brown. Below 48" texture becomes sandy clay loam or coarser. Profile is very strongly acid.	1. Medium 2. Low 3. < 1 4. Low	Level flats or depressions.	Poorly drained.	Ponded water covers the soil surface to over 20 inches in depth 1 or more times a growing season for from 5 to 30 days. The balance of the time it declines to within the 6 to 20 inch zone within the soil or lower.	.06 - .20	1. Small extent, small areas 2. Ga., Ala., Fla., N.C., S.C. 3. 85 percent
1. Henry 2. Coarse-silty, mixed, thermic 3. Typic Fragiaqualfs	77-92/	17" to 25" gray friable silt loam over gray firm brittle fragipan. Below 50" is friable silty clay loam or silt. Profile is strongly to very strongly acid to about 4 feet and may become mildly alkaline below.	1. Low to medium 2. Low to medium 3. < 1 4. Low to medium	Nearly level to level depressions and broad level flats.	Poorly drained.	Perched water levels rise to the 0 to 15 inch level and remain there for from 5 to 30 days one or more times in a growing season. Water table drops below 5 feet in the dry season.	0.06 - 0.20	1. Large extent medium areas 2. Tenn., Ky., Ark., Miss., La., Mo. 3. 15 percent
	FEET						INCHES/HOUR	
1. Hyde 2. Fine-loamy, mixed, thermic (siliceous) 3. Typic Umbric Paleaquults	87-103/87-103	10"-20" black and very dark gray loam over dark gray clay loam. Profile is strongly acid to extremely acid.	1. Medium 2. Low to medium 3. < 1 4. Medium	Nearly level areas and slight depressions.	Very poorly drained.	Water very seldom stands more than 5 inches above the soil for more than a few days. More frequently it is at the surface to about 5 inches below where it may remain for from 5 to 30 days 1 or more times in a season. Occasionally water levels decline as low as 20 inches.	0.63 - 2.0	1. Medium extent medium areas 2. N.C., S.C., Ga., Fla., Miss., Va., possibly Md. 3. 90 percent
	FEET						INCHES/HOUR	
1. Immokalee 2. Sandy, siliceous hyperthermic 3. Arenic Haplaquods	/67-83	2" to 8" very dark gray fine sand over light gray to white loose fine sand. At about 35" is black weakly cemented organic pan. Below 54" is loose fine sand. Profile is strongly to very strongly acid.	1. Low 2. Low 3. < 1 4. Low	Level to nearly level flats adjoining swamps, marshes, and lakes.	Poorly drained.	The water level rises to within 5 inches of the soil surface several times a growing season and remains there for from 1 to 4 days.	> 6.3	1. Medium extent medium areas 2. Southern Fla. 3. 60 percent
	FEET						INCHES/HOUR	
1. Johnston 2. Coarse-loamy siliceous, acid thermic 3. Cumulic Humaquepts	87-103/85-100*	20" to 40" black friable loam very high in organic matter over gray sandy loam. Below this is sandy or clayey material. Profile is very strongly acid.	1. Medium 2. Low to medium 3. < 1 4. Low to medium	Level bottoms and depressions subject to overflow.	Very poorly drained.	Overflow covers the soil surface for from 1 to 4 days more than 6 inches deep and up to 5 inches deep for from 5 to 30 days 1 or more times a growing season. Water levels in the soil stay within 20 inches of the surface most of the growing season.	2.0 - 6.3	1. Small extent, small areas 2. N.C., Ga., Miss., Md. 3. 75 percent
1. Kanapaha 2. Loamy, siliceous, hyperthermic 3. Grossarenic Paleaquults	-/77-93*	40"-60" dark gray and light gray fine sand over gray loam or sandy clay loam. Many weathered phosphatic fragments. Profile is strongly acid.	1. Low 2. Low 3. < 1 4. Low	Nearly level to gently sloping areas.	Somewhat poorly drained.	The water table rises to the 6 to 20 inch zone in the soil 1 or more times a growing season and remains there for from 5 to 30 days each time.	> 6.3	1. Small extent, small areas 2. Southern Fla. 3. 35 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Kiawah 2. Sandy, mixed, thermic 3. Aeric Umbric Ochraqualfs	75-91/70-85*	7" to 10" very dark grayish brown loamy fine sand over dark grayish brown loamy fine sand. Below 18" grayish brown loamy fine sand mottled with brown. Profile is slightly to strongly acid.	1. Low 2. Medium 3. <1 4. Low	Nearly level low marine terraces.	Somewhat poorly drained.	Water levels remain within the 6 to 20 inch zone in the soil profile for long periods of time during the growing season.	2.0 - 6.3	1. Medium extent, medium areas 2. S.C., N.C., Ga., possibly Fla. 3. 60 percent
1. Leaf 2. Clayey, mixed, thermic 3. Typic Albaquults	84-100/80-95	6" to 12" dark gray silt loam over gray silty clay mottled red and brown. Profile strongly to very strongly acid.	1. Medium to high 2. Low 3. <1 4. Medium	Nearly level flats.	Poorly drained.	Ponded water lies up to 5 inches in depth over the soil surface for from 5 to 30 days several times each growing season.	.06 - .20	1. Medium extent, small areas 2. Ala., Ark., Fla., Ga., Miss., N.C., S.C., La.
	FEET						INCHES/HOUR	
1. Leefield 2. Loamy, siliceous thermic 3. Arenic Plinthaquic Paleudults	74-90/74-90	20"-40" light brownish gray loamy sand grading to light yellowish brown sandy clay loam mottled with gray and yellow. Soft plinthite occurs in this horizon. Profile is strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Level to nearly level terraces.	Somewhat poorly drained.	Water rises into the 6 to 20 inch level in the soil 1 or more times a growing season and remains there for from 5 to 30 days.	0.20 - 0.63	1. Large extent, medium areas 2. N.C., S.C., Ga., Fla., Ala., Tex. 3. 60 percent
1. Lenoir 2. Clayey, mixed thermic 3. Aeric Paleaquults	75-92/	9"-14" brownish gray fine sandy loam grading to mottled gray clay. Profile strongly to very strongly acid.	1. Low 2. Low to medium 3. <1 4. Low	Nearly level to gently sloping areas.	Somewhat poorly drained.	Water saturates the upper 5 inches of soil from 1 to 4 days and the 6 to 20 inch soil level for from 5 to 30 days several times each growing season.	.06-.20	1. Medium extent, medium areas 2. N.C., S.C., Va., Ala., Miss., Md. 3. 60 percent
	FEET						INCHES/HOUR	
1. Leon 2. Sandy, siliceous thermic 3. Aeric Haplaquods	67-83/67-83	10" to 20" light gray, loose sand over black, weakly cemented pan. Below 30" is loose sand. Profile is strongly to extremely acid.	1. Low 2. Low 3. <1 4. Low	Nearly level to gently sloping flat areas.	Somewhat poorly drained.	Water levels rise up into the upper 5 inches of soil for from 1 to 4 days one or more times each growing season.	0.63 - 2.0	1. Large extent, medium areas 2. Fla., Ga., S.C., N.C., Va. 3. 90 percent
1. Liddell 2. Coarse-silty siliceous, acid thermic 3. Typic Haplaquepts	80-95/-	6" to 10" dark gray very fine sandy loam over gray very friable very fine sandy loams. Profile is very strongly acid.	1. Low to medium 2. Low to medium 3. <1 4. Low	Level surfaces of middle and lower coastal plain.	Poorly drained.	Water levels range from 5 inches above to 5 inches below the soil surface 1 or more times each growing season and remain there for from 1 to 4 days each time. In the 6 to 20 inch level, below the surface water remains longer--5 to 30 days-- each time it rises into this zone.	0.63 to 2.0	1. Small extent, small areas 2. N.C., and Va. 3. 50 percent
	FEET						INCHES/HOUR	
1. Lumbee 2. Fine-loamy siliceous, thermic 3. Typic Ochraquults	86-102/83-99	10" to 20" gray loamy sand over light gray sandy clay loam. Below 36" are fluvial sediments that range from sandy to clayey. Grades to coarse sand and gravel at about 48". Profile very strongly acid.	1. Low to medium 2. Low 3. <1 4. Low to medium	Nearly level flats and depressions.	Poorly drained.	Water levels range from 5 inches above to 5 inches below the soil surface 1 or more times each growing season and remain there for from 1 to 4 days each time. In the 6 to 20 inch level water remains longer--5 to 30 days -- each time it rises into this zone. Surface run off is slow.	.63 - 2.0	1. Large extent, medium areas 2. N.C., S.C., Ga., Fla., possibly Va. 3. 50 percent
1. Lynchburg 2. Fine-loamy, siliceous, thermic 3. Aeric Paleaquults	78-94/78-94	6"-14" grayish brown loamy fine sand grading to light yellowish brown sandy clay loam mottled with brown and gray at about 16". Profile is strongly to very strongly acid.	1. Low to medium 2. Low to medium 3. <1 4. Low to medium	Level to gently sloping areas.	Somewhat poorly drained.	Water saturates the 6 to 20 inch level and below from 5 to 30 days several times a growing season.	0.63-2.0	1. Medium extent, medium areas 2. Fla., Ala., Miss., La., Ga., S.C., N.C., Va. 3. 60 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET *						INCHES/HOUR	
1. Lynn Haven 2. Sandy, siliceous thermic 3. Typic Haplaquods	62-78/62-78	10" to 18" black fine sand over light gray fine sand. A dark reddish brown weakly cemented organic pan occurs at about 16". Below this layer is gray fine sand. Profile is very strongly acid.	1. Low to medium 2. Medium 3. <1 4. Low to medium	Level to nearly level low broad flats.	Poorly drained.	Water levels remain within 5 inches of the soil surface for from 5 to 30 days 1 or more times each growing season.	0.63 - 2.0	1. Medium extent, small areas 2. Fla., Ga., S.C., N.C. 3. 95 percent
1. Manatee 2. Coarse-loamy, mixed, non-calcareous hyperthermic 3. Typic Argiaquolls	-/82-98	10" to 22" black loamy fine sand over dark gray fine sandy loam. Below 30" is marl or calcareous sandy loam. Profile is neutral to mildly alkaline.	1. Medium 2. High 3. >1 4. Medium to high	Nearly level or depressed areas.	Very poorly drained.	Water levels flood the surface up to 20 inches in depth for more than 30 days 1 or more times each growing season.	0.63 to 2.0	1. Small extent small areas 2. Southern Fla. 3. 85 percent
	FEET *						INCHES/HOUR	
1. Mantachie 2. Fine-loamy, siliceous, acid thermic 3. Aeric Fluventic Haplaquepts	90-105/87-103	4" to 14" brown fine sandy loam over mottled gray, brown, and yellow loam. Profile is strongly to very strongly acid.	1. Medium 2. Medium 3. >1 4. Medium	Nearly level bottom that overflows few to several times a year.	Somewhat poorly drained.	Moving water floods over the soil surface for from 5 to 30 days 1 or more times a growing season. Occasionally, water levels 6 to 20 inches deep occur for 1 to 6 days. Very seldom do water levels exceed 20 inches and then for less than 24 hour periods. Between floods, groundwater levels remain about 20 inches below the soil surface for the winter and spring months.	0.63 - 2.0	1. Large extent, large areas 2. Ala., Ark., Fla., Ga., Ky., La., N.C., S.C., Tenn. Texas
	FEET						INCHES/HOUR	
1. Mascotte 2. Sandy over loamy, siliceous, thermic 3. Ultic Haplaquods	72-88	3" to 8" very dark gray sand over gray to white loose sand. At about 15" is black weakly cemented organic pan. Below 30" is mottled gray and yellow sandy clay loam. Profile is very strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level flat areas.	Poorly drained.	Water rises to within 5 inches of the soil surface and remains there for from 1 to 4 days 1 or more times each growing season.	0.63 - 2.0	1. Large extent medium areas 2. Fla., Ga., S.C. 3. 80 percent
1. Mashulaville 2. Coarse, loamy siliceous, thermic 3. Typic Fragiaquults	72-88/	16"-30" light gray loam over mottled gray and yellow brown brittle fragipan. Profile is strongly acid to very strongly acid.	1. Medium 2. Low to medium 3. <1 4. Low to medium	Nearly level depressions and flats.	Poorly drained.	Ponded water stands up to 5 inches deep over the soil surface for from 1 to 4 days 1 or more times each growing season. Water table drops below 5 feet in the day season.	.06 - .20	1. Small extent small areas 2. Ala., Miss., Ark., La., possibly Tenn. 3. 80 percent
	FEET						INCHES/HOUR	
1. Mayhew 2. Fine, montmorillonitic, thermic 3. Vertic Ochraqualfs	80-95/	4" - 10" yellowish brown silty clay loam over gray plastic clay. Below 4 to 8 feet shale occurs. Profile is very strongly acid.	1. High 2. Medium 3. >1 4. Medium to high	Nearly level to gently sloping.	Poorly drained.	Water very seldom stands on the soil surface and then for less than a day. More often, the upper 5 inches of soil are saturated from 1 to 4 days while the 6 to 20 inch soil level is wetted from 5 to 30 days at a time much of the growing season.	< .02	1. Small extent medium areas 2. Ala., Miss. 3. 40 percent
1. Meggett 2. Fine, mixed thermic 3. Typic Albaqualfs	92-108/92-108	4" to 14" gray, silty acid, loamy fine sand over neutral to moderately alkaline gray sandy clay loam.	1. High 2. High 3. >1 4. High	Level low-lying areas.	Poorly drained.	Water stands for from 1 to 4 days up to 5 inches deep over the soil surface 1 or more times a growing season.	0.063-0.20	1. Small extent medium areas 2. Fla., Ga., possibly Ala., S.C. 3. 95 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
1. Myakka 2. Sandy, siliceous hyperthermic 3. Aeric Haplaquods	FEET /72-88	2" to 8" dark gray fine sand over light gray to white fine sand. A dark reddish brown weakly cemented organic pan at about 24". Below this layer is brown loose fine sand. Profile is strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level to gently sloping areas adjacent to swamps, marshes, ponds and lakes.	Poorly drained.	Water remains within 5 inches of the soil surface for from 1 to 4 days or more times each growing season.	INCHES/HOUR 0.63 - 2.0	1. Large extent large areas 2. Southern Fla. 3. 40 percent
1. Myatt 2. Fine-loamy, mixed, thermic 3. Typic Ochraqualts	87-103/85-100	6" to 16" gray silt loam over gray sandy clay loam or loam mottled with yellow and brown. Below 48" to 60" is fine sandy loam or coarse material. Profile is strongly to extremely acid.	1. Medium 2. Low 3. <1 4. Medium	Level or nearly level broad stream terraces occasionally flooded.	Poorly drained.	Water stands on the soil surface for from 1 to 4 days several times each growing season. The upper 20 inches of soil remains saturated for from 1 to 5 days 1 to 10 times a growing season.	.20 - .63	1. Large extent, medium areas 2. Ala., Ark., Fla., La., Ga., Miss., N.C., S.C., Va. 3. 70 percent
1. Nahunta 2. Fine-loamy, siliceous, thermic 3. Aeric Paleaquults	FEET 79-95/	5" - 10" dark gray very fine sandy loam grading to brownish yellow clay loam mottled with gray at about 15". Profile is strongly to medium acid.	1. Medium 2. Medium 3. <1 4. Medium	Nearly level to depressional surfaces.	Somewhat poorly drained.	Water saturates the upper 5 inches of soil for several days 1 or more times a growing season and remains in the 6 to 20 inch soil level for from 5 to 30 days each time.	INCHES/HOUR 0.63 - 2.0	1. Large extent, medium areas 2. N.C., S.C., Va. 3. 50 percent
1. Ocilla 2. Loamy, siliceous thermic 3. Aquic Arenic Paleudults	72-88/72-88	20"-30" light brownish gray loamy sand grading to brownish yellow sandy clay loam mottled with red and gray at 50". Profile is strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Level to nearly level flats.	Somewhat poorly drained.	Water saturates the 6 to 20 inch soil level for periods ranging from 5 to 30 days 1 or more times a growing season.	0.63 - 2.0	1. Medium extent medium areas 2. Ga., Fla., Ala., N.C., S.C., Tex. 3. 65 percent
1. Olustee 2. Sandy over loamy, siliceous, thermic 3. Ultic Haplaquods	FEET /68-84	5" to 8" very dark gray fine sand over dark brown weakly cemented organic pan. Below 20" is light gray sandy clay loam. Profile is strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level flat areas.	Poorly drained.	Water remains within 5 inches of the soil surface for from 1 to 4 days 1 or more times each growing season.	INCHES/HOUR 0.63 - 2.0	1. Medium extent, small areas 2. Ga., Fla., possibly S.C. and Ala. 3. 80 percent
1. Ona 2. Sandy, siliceous hyperthermic 3. Aeric Haplaquods	/67-83	4" to 8" very dark gray fine sand over very dark brown to black weakly cemented organic pan. Below 20" is grayish brown to white fine sand. Profile is strongly to extremely acid.	1. Low 2. Low 3. <1 4. Low	Level to nearly level flats.	Poorly drained.	Water remains within 5 inches of the soil surface for from 1 to 4 days 1 or more times each growing season.	0.63 - 2.0	1. Medium extent, medium areas 2. Southern Fla. 3. 98 percent
1. Osier 2. Siliceous, thermic 3. Typic Psammaquents	FEET * 72-88/72-88	2" to 5" very dark grayish brown loamy sand over dark gray loamy sand. Below 12" is gray loamy sand or sand. Profile is medium to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Level to nearly level or depressions subject to flooding and accumulation of sediments.	Poorly drained.	Water levels flood the soil up to 20 inches in depth for from 5 to 30 days 1 or more times each growing season. In between floods, ground water levels recede to the 6 to 20 inch level and remain there for from 5 to 30 days at a time.	INCHES/HOUR 2.0 - 6.3	1. Medium extent medium areas 2. Ga., Ala., North Fla., N.C., S.C., Texas 3. 95 percent
1. Panasoffkee 2. Fine, mixed, hyperthermic 3. Arenic Ochraqualfs	-/72-88	20" to 40" gray fine sand over gray fine sandy clay. Profile is medium acid to mildly alkaline below 20".	1. Low 2. Medium 3. <1 4. Low	Nearly level low flats.	Somewhat poorly drained.	Water remains in the 6 to 20 inch soil level for from 5 to 30 days 1 or more times each growing season.	0.63 - 2.00	1. Small extent, small areas 2. Southern Fla. 3. 85 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (meq./100g) 4. Overall Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Pansey 2. Fine-loamy, siliceous, thermic 3. Plinthic Fragiaquults	75-90/72-88	6" - 18" gray fine sandy loam grading to light gray sandy clay loam at 20". Mottled gray, red and yellowish brown brittle sandy clay loam fragipan containing 10 to 50 percent soft plinthite at between 30" and 50". Profile strongly acid.	1. Low to medium 2. Low 3. <1 4. Low	Level broad flats.	Poorly drained.	Water levels remain from 5 inches above to 5 inches below the soil surface for from 5 to 30 days 1 or more times a growing season. Below 5 inches the soil remains saturated for long periods of time each growing season.	0.63 - 2.00	1. Medium extent medium areas 2. Ala., Ga., Fla., N.C., S.C., possibly Ark., Miss. 3. 70 percent
	FEET						INCHES/HOUR	
1. Pantego 2. Fine-loamy siliceous, thermic 3. Typic Umbric Paleaquults	88-104/82-98*	10"-20" black to very dark gray fine sandy loam over gray sandy clay loam mottled yellow and brown. Profile is very strongly acid.	1. Medium to high 2. Low to medium 3. <1 4. Medium	Level to nearly level flats and depressions.	Very poorly drained.	Ponded water stands on the soil surface up to 5 inches in depth, occasionally greater, for about 1 to 4 days 1 or more times a growing season. The upper 5 inches of soil remains saturated for from 5 to 30 days at a time. Water levels decline seldom below 20 inches in depth.	0.63 - 2.0	1. Medium extent, large areas 2. N.C., S.C., Ga., Fla., Ala., Miss., La., Va. 3. 65 percent
	FEET						INCHES/HOUR	
1. Parkwood 2. Coarse, loamy mixed, hyperthermic 3. Mollic Ochraqualfs	/72-88*	6" to 10" black fine sand over gray sandy loam. Below 30" gray loamy fine sand. Profile is neutral to mildly alkaline. Calcareous to within 10".	1. Low to medium 2. Medium to high 3. >1 4. Medium	Nearly level hammock areas that border streams and depressions.	Poorly drained.	Water levels are within 5 inches of the soil surface for from 1 to 4 days 1 or more times each growing season.	2.0 - 6.3	1. Small extent, Small areas 2. Southern Fla. 3. 65 percent
1. Pasquotank 2. Coarse-silty, mixed, acid thermic 3. Typic Haplaquepts	85-100/-	13" to 18" gray silt loam over mottled silty dry loam. Below 40" light gray silt loam mottled with brown and yellow. Profile is strongly acid.	1. Medium to high 2. Medium 3. >1 4. Medium	Nearly level depressions.	Poorly drained.	Water levels remain from 5 inches above to 5 inches below the soil surface for from 1 to 4 days 1 or more times each growing season. The 6 to 20 inch soil level is saturated for from 5 to 30 days several times a growing season as well.	0.63 - 2.0	1. Small extent, small areas 2. N.C., Va., N.J., S.C., Md. 3. 10 percent
	FEET						INCHES/HOUR	
1. Pelham 2. Loamy, siliceous, thermic 3. Aeric Paleaquults	82-98/82-98	20" - 40" gray loamy sand over light gray sandy clay loam. Profile is strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Level broad flats and depressions.	Poorly drained.	Water floods the soil surface up to 20 inches in depth for from 5 to 30 days 1 or more times each growing season. The water table seldom drops below 20 inches during the growing season.	0.63 - 2.0	1. Medium extent, medium areas 2. Ga., S.C., Ala., Fla., Tenn. 3. 80 percent
1. Pheba 2. Coarse-silty, siliceous, thermic 3. Aqueptic Fragiudults	82-98/77-93*	3"-7" mottled brown and gray silt loam over brown silt loam mottled with gray. Brownish yellow brittle, loam fragipan mottled with gray below 20". At about 45 inches underlain by mottled gray and brown clay loam to silt loam. Profile is medium to very strongly acid.	1. Medium 2. Low 3. <1 4. Low to medium	Nearly level to gently sloping uplands.	Somewhat poorly drained.	Water covers the surface during rainy spells but then for less than 24 hours. Perched water levels are within the upper 5 inches of soil for from 5 to 30 days during the wet seasons.	0.20 - 0.63	1. Large extent, medium areas 2. Ark., Miss., Ala., La. 3. 75 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Placid 2. Sandy, siliceous hyperthermic 3. Typic Humaquepts	/78-93	18" to 24" very dark gray or black sand or fine sand over mottled grayish brown or light gray fine sand. Profile is strongly to extremely acid.	1. Low to medium 2. Low 3. <1 4. Medium	Nearly level depressions.	Very poorly drained.	The water table remains up to 20 inches in depth over the soil surface for more than 30 days 1 or more times each growing season.	> 6.3	1. Medium extent, small areas 2. Southern Fla. 3. 85 percent
1. Plummer 2. Loamy, siliceous, thermic 3. Grossarenic Paleaquults	80-95/77-93	40"-60" dark gray and light gray fine sand over light gray sandy loam. Profile is extremely to strongly acid.	1. Low 2. Low 3. <1 4. Low	Level flats, drains and slight depressions.	Poorly drained.	Water covers the soil to depths of up to 20 inches for from 5 to 30 days 1 or more times each growing season. Between wet periods, the water table declines to the 6 to 20 inch soil level and remains there for from 5 to 30 days.	2.0 - 6.3	1. Medium extent, medium areas 2. Ala., Fla., Ga., N.C., S.C. possibly Va., Miss. 3. 95 percent
	FEET						INCHES/HOUR	
1. Pompano 2. Siliceous hyperthermic 3. Typic Psammaquents	*/72-88	5" to 18" dark gray to grayish brown, fine sand over very pale brown, loose fine sand. Below 40" may have shell fragments or limestone. Profile is slightly acid to mildly alkaline.	1. Low 2. Medium 3. >1 4. Low to medium	Level to nearly level depressions, sloughs, or drainageways.	Poorly drained.	Water floods up to 5 inches in depth over the soil surface for from 5 to 30 days 1 or more times each growing season.	> 6.3	1. Small extent 2. Southern Fla. 3. 75 percent
1. Portsmouth 2. Fine-loamy, siliceous, thermic 3. Typic Umbraquults	85-101/82-98	10"-20" black loam grading to gray clay loam. Below 34" is light gray sand. Profile is strongly to very strongly acid.	1. Medium to high 2. Medium 3. <1 4. Medium	Level to nearly level flats and slight depressions.	Very poorly drained.	Water stands over the soil surface from 6 to 20 inches in depth for most of the growing season.	0.63 - 2.0	1. Small extent small areas 2. Va., N.C., S.C., Ga., Fla., Ala., Miss. 3. 85 percent
	FEET						INCHES/HOUR	
1. Quitman 2. Fine-loamy, mixed, thermic 3. Aquic Fragiudults	82-98/77-93	5"-12" pale brown fine sandy loam over yellowish brown mottled in shades of brown heavy fine sandy loam. Mottled brown, gray, yellowish, slightly brittle fragipan below 18". Profile is strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level to gently sloping terraces and uplands.	Somewhat poorly drained.	Water covers the surface during rainy spells but for less than 24 hours. Perched water levels are within the upper 5 inch soil level for from 5 to 30 days during the wet season.	0.20 - 0.63	1. Large extent, small areas 2. Ala., Ark., La., Miss., Fla., N.C., possibly Va. 3. 40 percent
1. Rains 2. Fine-loamy, siliceous, thermic 3. Typic Paleaquults	84-100/81-97	4"-9" very dark gray sandy loam grading to gray sandy clay loam at 20 inches. Below 70" is gray sand to clay. Profile is strongly to very strongly acid.	1. Low to medium 2. Low 3. <1 4. Low to medium	Nearly level flats and slight depressions.	Poorly drained.	Water levels remain within the 6 to 20 inch soil level during the wet season	0.63-2.0	1. Large extent, medium areas 2. Ala., Fla., Ga., Miss., La., N.C., S.C., Ok., Tex., Virginia 3. 90 percent
	FEET						INCHES/HOUR	
1. Rutlege 2. Sandy, siliceous thermic 3. Typic Humaquepts	78-94/74-90	8" to 20" black or very dark gray loamy sand loose sand over grayish brown loose sand mottled with gray and yellow, Profile is very strongly acid to extremely acid.	1. Low to medium 2. Low 3. <1 4. Low	Level to nearly level flats and depressions.	Very poorly drained.	Water stands on the soil surface up to 5 inches in depth for from 1 to 4 days 1 or more times each growing season. The upper 20 inches of soil remains saturated for from 5 to 30 days each time it is rewetted and seldom declines below 20 inches in depth.	> 6.3	1. Large extent, medium areas 2. Md., Va., N.C., S.C., Ga., Fla., Ala., Miss. 3. 90 percent
1. St. Johns 2. Sandy, siliceous hyperthermic 3. Typic Haplaquods	-/62-78	10" to 14" black sand over light gray sand. A black cemented hard pan occurs at about 20". Below this layer is loose sand. Profile is very strongly acid.	1. Low to medium 2. Medium 3. < 1 4. Low to medium	Level to nearly level broad flats.	Very poorly drained.	Water level remains within 5 inches of the soil surface for from 5 to 30 days 1 or more times each growing season.	0.63 - 2.0	1. Medium extent, small areas 2. Southern Fla. 3. 95 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Santee 2. Fine, mixed, noncalcareous thermic 3. Typic Haplaquolls	92-108/	4" to 10" black loam over black or very dark gray clay loam to 24". Below 24" dark gray clay loam. Profile is medium acid in upper part to moderately alkaline below.	1. High 2. High 3. > 1 4. High	Nearly level to level low marine terraces.	Very poorly drained.	Water floods over the soil surface to depths exceeding 20 inches for most of the growing season.	0.06 - 0.20	1. Medium extent, medium areas 2. S.C., Ga., N.C., Fla. 3. 90 percent
1. Scranton 2. Siliceous thermic 3. Mollic Psammaquents	* 72-88/72-88	6" to 10" black loamy fine sand over grayish brown loamy fine sand or sand. Below 32 to 35" is light gray pale yellow to yellow fine sand. Profile is strongly to very strongly acid.	1. Medium 2. Low to medium (low) 3. < 1 4. Low to medium	Nearly level broad areas.	Somewhat poorly drained.	Water levels remain in the 6 to 20 inch soil level for most of the growing season	> 6.3	1. Large extent, small areas 2. N.C., S.C., Ga., Fla., Ala., Miss. 3. 75 percent
1. Sellers 2. Sandy, siliceous hyperthermic 3. Cumulic Humaquepts	-77-92	24" to 40" black sand over gray or brownish gray sand. Profile is strongly to very strongly acid.	1. Low to medium 2. Low to medium 3. < 1 4. Low to medium	Nearly level depressions or poorly defined drainageways.	Very poorly drained.	Water table is within depth of 10 inches for more than 6 months during most years. May flood the surface following heavy rains	> 6.3	1. Small extent, small areas 2. Southern Fla. 3. 90 percent
	FEET						INCHES/HOUR	
1. Sorter 2. Coarse-loamy, mixed, thermic 3. Typic Ochraqualfs	82-98/-	12" to 30" gray silt loam over light gray silt loam. Below 72" ranges from fine sandy loam to silt loam. Profile is medium to very strongly acid.	1. Low to medium 2. Medium 3. > 1 4. Medium	Level uplands.	Poorly drained.	Water remains standing up to 5 inches in depth over the soil surface for from 1 to 4 days, occasionally flooding more deeply for less than 24 hours, 1 or more times a growing season. The upper 20 inches of soil remains saturated for from 5 to 30 days at a time.	0.63 to 2.0	1. Large extent, medium areas 2. Tex., La., Miss., Ala. 3. 75 percent
1. Splendora 2. Fine-loamy, mixed, thermic 3. Glossaquic Fragiudalfs	FEET 84-100	6"-15" grayish brown fine sandy loam over yellowish brown and brownish gray mottled loam. Below 24" is mottled gray and brown sandy clay loam. Non-indurated plinthite at depths below 30". Profile is strongly to very strongly acid.	1. Low 2. Medium 3. > 1 4. Medium	Level to gently sloping uplands.	Somewhat poorly drained.	During wet periods, perched water slowly runs off the soil surface for from 1 to 4 days and then the water table declines to the 6 to 20 inch level. Most of the growing season water levels are below 20 inches in depth.	INCHES/HOUR 0.20-0.63	1. Large extent, medium areas 2. Tex., Ala., Miss. 3. 80 percent
1. Springfield 2. Fine, mixed, thermic 3. Aeric Albaqualfs	* 82-98/	10" to 15" light brownish gray silt loam mottled with brown over grayish brown silty clay mottled with brown. Below 30 to 40 inches texture grades to silt loam or light silty clay loam. Profile is very strongly acid to medium in upper part and medium acid to mildly alkaline in lower part.	1. Medium to high 2. Medium to high 3. > 1 4. Medium to high	Nearly level to level upland terraces.	Poorly drained.	Water levels very seldom rise above the soil surface and then to a depth of less than 5 inches for from 1 to 4 days. The 20 inches of the soil is saturated for from 5 to 30 days 1 or more times each growing season.	.06 - .20	1. Small extent, large areas 2. Ia. 3. 95 percent
	FEET *						INCHES/HOUR	
1. Stono 2. Fine-loamy, mixed, non-calcareous, thermic 3. Typic Argiaquolls	88-103/85-100	10" to 20" black fine sandy loam over dark gray fine sandy dry loam. Below 40" may have a sandy strata. Profile is neutral to strongly acid.	1. Medium 2. High 3. > 1 4. High	Nearly level low marine terraces.	Very poorly drained.	Water stands over the soil surface more than 20 inches in depth for most of the growing season.	2.0 - 6.3	1. Medium extent, medium areas 2. S.C., Ga., Fla., N.C., Va. 3. 60 percent
1. Stough 2. Coarse-loamy, siliceous, thermic 3. Aquic Fragiudults	82-98/77-93	4"-12" dark grayish brown fine sandy loam over mottled brown, yellow and gray loam. Below 17" mottled yellow brown and gray slightly brittle loam fragipan. Below 40" mottled brown gray and yellow fine sandy loam. Profile strongly to very strongly acid.	1. Low 2. Low to medium 3. < 1 4. Low	Nearly level to gently sloping terraces and uplands.	Somewhat poorly drained.	Water covers the soil surface during rainy spells when for less than 24 hours. Perched water levels are within the upper 5 inch soil level for from 5 to 30 days during the wet season	-0.20 - 0.63	1. Medium extent, medium areas 2. Ala., Miss., La., Ark., Fla., S.C., N.C., possibly Va. 3. 40 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly/Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Summerfield 2. Fine-loamy, mixed, thermic 3. Aeric Ochraquults	70-86/	3"-10" brown loam over strong brown loam mottled with gray. Below 30" gray clay mottled with red and brown. Profile is strongly to extremely acid.	1. Low 2. Medium 3. <1 4. Low	Level to nearly level uplands. Mounds are common feature of landscape.	Somewhat poorly drained.	Water very seldom covers the soil surface and then for less than 24 hours. The upper 5 inches of soil remains saturated for from 1 to 4 days and the 6 to 20 inch level for from 5 to 30 days 1 or more times a growing season.	.06 - 0.20	1. Medium extent large areas 2. La., Ark., Tex., possibly Ala., Miss. 3. 30 percent
1. Sunniland 2. Loamy, mixed, hyperthermic 3. Aquic Arenic Hapludalfs	/77-92	20" to 40" gray fine sand or sand over mottled gray and yellow brown sandy loam. Below 40" may have limestone. Profile slightly acid to strongly acid in upper part; moderately alkaline in lower part.	1. Low to medium 2. Low to medium 3. <1 4. Low to medium	Nearly level to gently sloping areas.	Somewhat poorly drained.	Water levels remain within the 6 to 20 inch soil level for periods of from 5 to 30 days 1 or more times a growing season.	2.0 - 6.3	1. Small extent small areas 2. Fla., S.W. Ga. 3. 60 percent
	FEET *						INCHES/HOUR	
1. Torhunta 2. Coarse-loamy, siliceous, acid thermic 3. Aeric Humaquepts	78-94/75-90	10" to 20" black sandy loam over dark grayish brown sandy loam. Below about 40" very friable loamy sand or sand. Profile is very strongly acid.	1. Low to medium 2. Low 3. <1 4. Low	Nearly level and slight depressional areas.	Very poorly drained.	Ponded water stands on the soil surface up to 5 inches in depth, occasionally greater for about 1 to 4 days, 1 or more times a growing season. The upper 5 inches of soil remain saturated for about 5 to 30 days at a time. Water levels seldom decline below 20 inches below the surface.	2.0 - 6.3	1. Large extent, medium areas 2. Fla., Ga., N.C., S.C., Va. 3. 70 percent
	FEET						INCHES/HOUR	
1. Tuckerman 2. Fine-loamy, mixed, thermic 3. Typic Ochraqualfs	82-98/-	5" to 10" dark grayish brown fine sandy loam over gray sandy clay loam mottled with brown. Below 34" fine sandy loam. Profile is medium to very strongly acid.	1. Medium 2. Medium 3. >1 4. Medium	Nearly level to gently sloping terraces and depressions.	Poorly drained.	Perched water levels stand from 5 inches above to 5 inches below the soil surface for from 1 to 4 days 1 or more times each growing season. The 6 to 20 inch soil level remains saturated for from 1 to 5 days each time.	0.20 - 0.63	1. Large extent, medium areas 2. Ark., La., Miss., Tenn., Tex. 3. 20 percent
	FEET *						INCHES/HOUR	
1. Verona 2. Fine-silty, mixed, nonacid thermic 3. Aeric Haplaquents	87-103/	10" to 18" brown, silt loam over mottled gray and brown loam. Below 38" may be underlain by clay. Profile is neutral to moderately alkaline.	1. Medium 2. High 3. >1 4. Medium to high	Level to nearly level bottoms subject to occasional overflow.	Somewhat poorly drained.	Water floods the soil surface up to 5 inches in depth for 1 to 4 days several times a growing season, occasionally deeper for periods of less than 24 hours. The upper 5 inches of soil remains saturated for from 5 to 30 days each time. Water levels seldom decline below 20 inches in depth.	0.63 - 2.0	1. Small extent 2. Ala., Miss. 3. 5 percent
	FEET						INCHES/HOUR	
1. Wabasso 2. Sandy over loamy, siliceous, hyperthermic 3. Alfic Haplaquods	/72-88	4" to 8" very dark gray fine sand over gray fine sand. Dark reddish brown weakly cemented organic pan at 16". Below is mottled gray and yellow mildly alkaline sandy loam. Upper profile is strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level flat areas.	Poorly drained.	Water levels remain within 5 inches of the soil surface for from 1 to 4 days 1 or more times each growing season.	0.63 - 2.0	1. Medium extent medium areas 2. Southern Fla. 3. 65 percent
1. Wadmalaw 2. Fine-loamy, mixed, thermic 3. Umbric Ochraqualfs	95-110/92-108	6" to 10" black fine sandy loam grading to dark gray sandy clay loam at 17". Profile is strongly to very strongly acid in upper 20", ranging to slightly acid to moderately alkaline below.	1. Medium to high 2. Medium 3. <1 4. Medium to high	Nearly level broad flats and drains.	Poorly drained.	Water levels remain within 5 inches of the soil surface for most of the growing season.	0.06 - 0.20	1. Medium extent, large areas 2. S.C., possibly Ga., Al., Fla. 3. 90 percent

Soil classification	Potential pine site indexes	Nature & thickness of important soil layers	Index to natural fertility	Slope and position	Natural water relationships		Hydraulic conductivity of top 30 inches	Importance
					Drainage class	Water table levels during the growing season		
1. Series 2. Family 3. Subgroup	Loblolly / Slash		1. C.E.C. (meq./100g) 2. Base Sat. (%) 3. Ca. (Meq./100g) 4. General Level					1. Extent & size 2. Distribution 3. Proportion under native vegetation
	FEET						INCHES/HOUR	
1. Wahee 2. Clayey, kaolinitic, thermic 3. Aeric Ochraquults	78-94/75-91 *	6"-14" very dark gray and light gray loam grading to gray plastic clay. Below 42" texture commonly ranges sandy clay loam. Profile strong to very strongly acid.	1. Low to medium 2. Low to medium 3. <1 4. Low to medium	Nearly level to gently sloping terraces along large streams and on marine terraces at low elevation.	Somewhat poorly drained.	Water levels remain in the 6 to 20 inch soil level for from 5 to 30 days 1 or more times each growing season.	.06 - .20	1. Large extent 2. Ala., N.C., S.C., Ga., possibly Fla., and Miss. 3. 20 percent
	FEET						INCHES/HOUR	
1. Waller 2. Fine-loamy, mixed, thermic 3. Typic Ochraqualfs	84-100/	20" to 40" light gray loam over gray clay loam. Profile is medium acid to very strongly acid above 48" and medium acid to neutral below. Gypsum crystals may be present in lower part of profile.	1. Medium 2. Medium 3. >1 4. Medium	Nearly level to depressed areas.	Poorly drained.	The ponded phase has water standing above the soil surface for most of the growing season. The typical phase floods up to 20 inches in depth for from 1 to 4 days 1 or more times a growing season. The water table remains from 5 inches above the soil surface to 20 inches below for from 5 to 30 days at a time.	0.20 - 0.63	1. Medium extent, small areas 2. Tex., La. 3. 90 percent
	FEET						INCHES/HOUR	
1. Weeksville 2. Coarse-silty, mixed, acid thermic 3. Typic Humaquepts	* 82-98	10" to 18" very dark gray silt loam over gray silt loam mottled with brown. Profile is medium to strongly acid.	1. Medium to high 2. Medium to high 3. >1 4. Medium	Nearly level to slight depressional areas.	Very poorly drained.	Water very seldom stands over 5 inches in depth over the soil surface for more than 1 to 4 days at a time. The upper 5 inches of soil remain saturated for from 5 to 30 days 1 or more times a growing season. As a rule the water table does not decline below 20 inches from the surface.	.63 - 2.0	1. Small extent, small areas 2. N.C., Va., N.J., possibly Del., Md., S.C. 3. 25 percent
1. Weston 2. Coarse-loamy, siliceous, thermic 3. Typic Ochraquults	* 84-100/84-100	8" to 12" grayish brown fine sandy loam over gray sandy loam or loam. Below 44" are stratified layers of sand silt and clay. Profile strongly to very strongly acid.	1. Low 2. Low 3. <1 4. Low	Nearly level to gently rolling uplands and terraces.	Poorly drained.	Water levels range from 5 inches above the soil surface to 20 inches below for from 1 to 4 days 1 or more times a season.	0.63 - 2.0	1. Medium extent, medium areas 2. Ala., Miss., Ark. 3. 60 percent
	FEET						INCHES/HOUR	
1. Wrightsville 2. Fine, mixed, thermic 3. Typic Glossaqualfs	72-87/	1" to 4" very dark grayish brown silt loam over light gray silt loam that tongues into gray silty clay at about 16". Below 50" is gray silty clay to silt loam. Extremely acid to strongly acid.	1. Medium 2. Medium 3. 1 4. Medium	Nearly level depressional areas and flats.	Poorly drained.	Water levels range from 5 inches above to 5 inches below the soil surface for from 1 to 4 days 1 or more times a growing season. The 6 to 20-inch level is saturated for from 5 to 30 days at a time.	0.06 - 0.2	1. Large extent, large areas 2. La., Ark., Ok., Texas 3. 70 percent
1. Yonges 2. Fine-loamy, mixed, thermic 3. Typic Albaqualfs	95-110/-	6" to 10" dark grayish brown loamy fine soil over light brownish gray fine sandy loam. Below 14" is gray sandy clay loam that grades to fine sandy loam at 40". Profile is slightly acid to very strongly acid on upper part and neutral to moderately alkaline in lower part.	1. High 2. High 3. 1 4. High	Nearly level low marine terraces.	Poorly drained.	The water table remains below 20 inches in the soil for most of the growing season.	0.20 - 0.63	1. Medium extent, medium areas 2. S.C., possibly N.C., Ga., Fla. 3. 60 percent


STATE AND PRIVATE FORESTRY
Private
State
Federal
SOUTHEASTERN AREA