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To the Graduate Council:

I am submitting herewith a thesis written by James C. Powell entitled "Composition and Precision of Classification of Several Mapping Units of the Appling, Cecil and Lloyd Series in Walton County, Georgia." I recommend that it be accepted for nine quarter hours credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Agronomy--Soils.

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Major Professor

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COMPOSITION AND PRECISION OF CLASSIFICATION OF SEVERAL MAPPING UNITS OF THE APPLING, CECIL AND LLOYD SERIES IN WALTON COUNTY, GEORGIA

A Thesis

Presented to

The Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

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by

James C. Powell

June

June 1964

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CHAPTER I

INTRODUCTION

Walton County comprises 330 square miles, or 211,200 acres, in the north-central part of Georgia (Figure 1).

Because the county is located near several of the larger urban areas of Georgia, the soils will be considered in future years for many alternative uses. It is imperative that the people interpreting the soils for these many uses, have accurate information about the soils in order to avoid unnecessary expenditures of time and money. To provide this information a medium-intensity standard soil survey was made for Walton County by the United States Department of Agriculture, Soil Conservation Service in cooperation with the University of Georgia, College of Agriculture, Agricultural Experiment Stations. This soil survey was completed and correlated in 1962 and is expected to be published sometime in 1964.

According to the survey, soils of the Appling, Cecil and Lloyd series are mapped in all sections of the county and comprise about 80% of it. The Appling soils comprise 17%; Cecil, 51%; and Lloyd, 12%. The delineations range from small to large.

The purpose of this study was to determine the composition of the most extensive mapping units of the Appling, Cecil and Lloyd series in Walton County and to evaluate the precision of classifying them into series, types and phases.

The specific objectives were: (a) to study soil properties of the pedons along transects, (b) to determine actual composition of the most

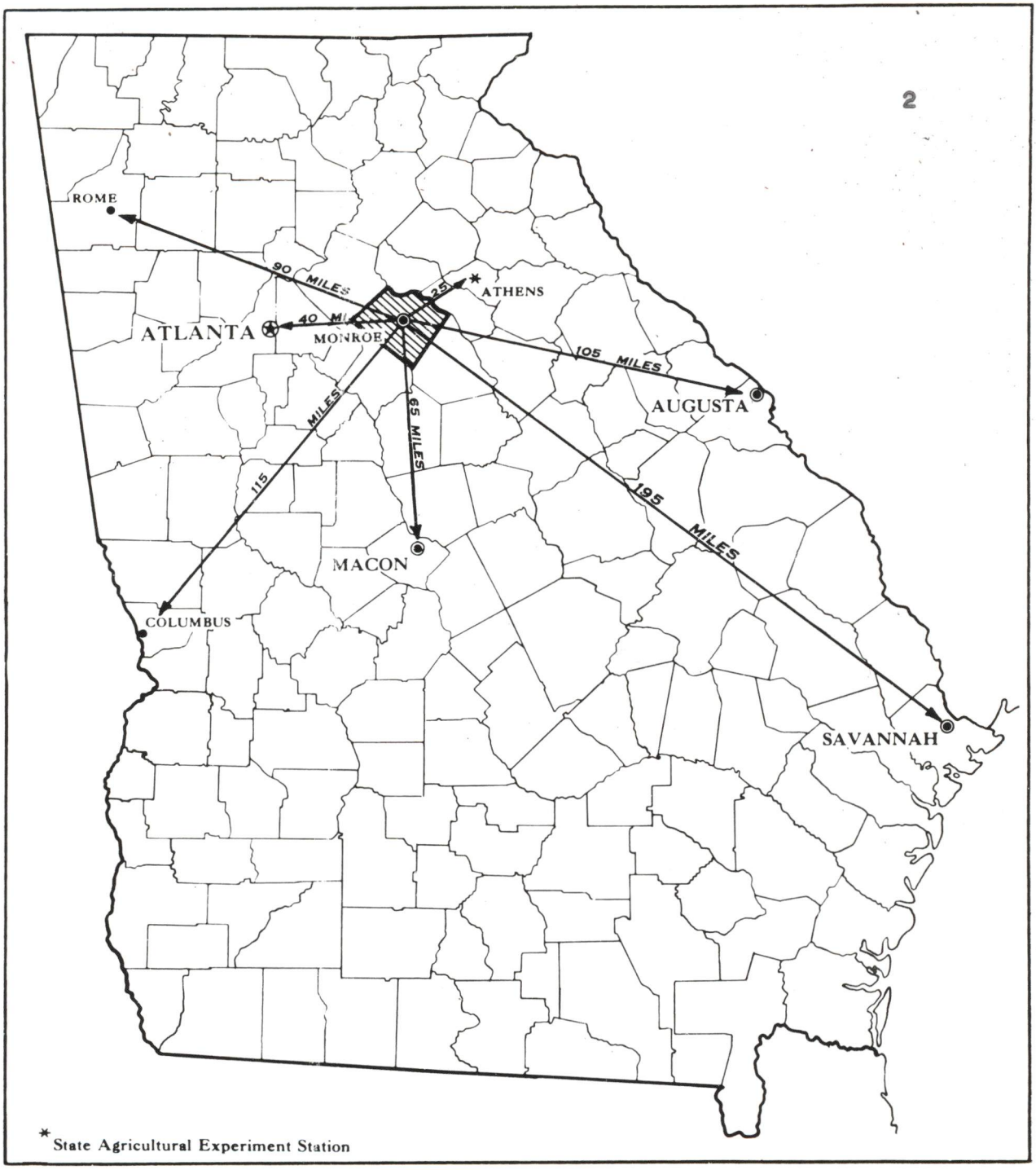

FIGURE 1. Location of Walton County in Georgia

extensive correlated mapping units of the Appling, Cecil, and Lloyd series, (c) to compare variations within current series, types, and phases to variations within the official soil series descriptions, and (d) to look for ways of improving the mapping.

The mapping in Walton County is considered typical of that being done by the Soil Conservation Service in Georgia.

CHAPTER II

REVIEW OF LITERATURE

General Nature of the Area

Physiography, Geology, and Drainage

Walton County is located in the center of the Southern Piedmont Major Land Resource Area of Georgia (11).

Fenneman (2) describes the Piedmont Upland as a peneplain in various stages of development and destruction. Typically, the landscape is rolling, has gentle slopes with no great relief, and is cut or bounded by valleys with steeper slopes and greater depth, often several hundred feet. In general this description fits Walton County, which has been thoroughly dissected by the Apalachee, Yellow, and Alcovy Rivers and their tributaries.

Most of the county consists of very gently sloping to strongly sloping uplands, but some areas near streams are steep. The flood plains of the rivers and creeks are level to nearly level.

Walton County is underlain by igneous and metamorphic rocks probably of Precambrian age. About 60% of the acreage is underlain by biotite gneiss and schist, which includes injected gneiss; the rest by granite gneiss, which includes diorite injected gneiss (3).

Nearly all of the upland area is well drained by one of many branching creeks, streams, or intermittent streams. About half of the acreage slopes southeast to the Apalachee River, and the rest slopes south to the Yellow and Alcovy Rivers. In most places, the top of the ridge

that separates these drainage areas is slightly more than 900 feet above sea level. The lowest point in the county, about 650 feet above sea level, is near the southwestern boundary of the county.[1]

Vegetation

The uplands of Walton County, before 1800, were covered predominantly by oak, hickory, and some pines. Yellow-poplar, gum, oak and maple grew on the floodplains. By 1920, most of the original timber had been cut and the uplands had reseeded naturally to loblolly and shortleaf pine.[2] The present forest cover consists mostly of loblolly and shortleaf pines, but undesirable hardwoods have invaded much of the area. Low-grade hardwoods in general make up the forest cover on the bottomlands.

Climate[3]

The climate of Walton County is uniform. Daytime temperatures reach or exceed 90°F. on one-half to two-thirds of the days during June, July, and August, and they commonly reach or exceed 100°F. during this period. By early morning, the temperature generally drops to below 70°F.

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[1] Thomas, G. J., Jr. and Tate, R. J. Unpublished Soil Survey--Walton County, Georgia. 1962.

[2] Statements by Sands, N. E., Forester, Soil Conservation Service, Waycross, Georgia, Personal Communication.

[3] Information from Carter, H. S., State Climatologist, U. S. Weather Bureau, Athens, Georgia, Personal Communication.

Some moderately cold weather may be expected each winter. Cold spells that drop early morning temperatures to freezing or below are usually of short duration, and they alternate with longer periods of comparatively mild winter weather. A temperature of 32°F, or less, may be expected on about fifty days during an average winter. Daytime temperatures commonly rise to about freezing, even during the coldest weather.

The frost-free growing season in the county averages about 225 days. The last freeze in spring usually occurs late in March; the first freeze in fall, about the second week in November.

Table 1 shows, by months, the average daily maximum temperatures, the average daily minimum temperatures, and the average precipitation.

General Soil Map

Figure 2 shows the main patterns of soils, called soil associations, in Walton County.[4] Each association contains a few major soils and several minor ones, in a pattern that is characteristic although not strictly uniform. Each association is named for the major soils in it.

Figure 3[5] shows relationship of the dominant soils of the Southern Piedmont.

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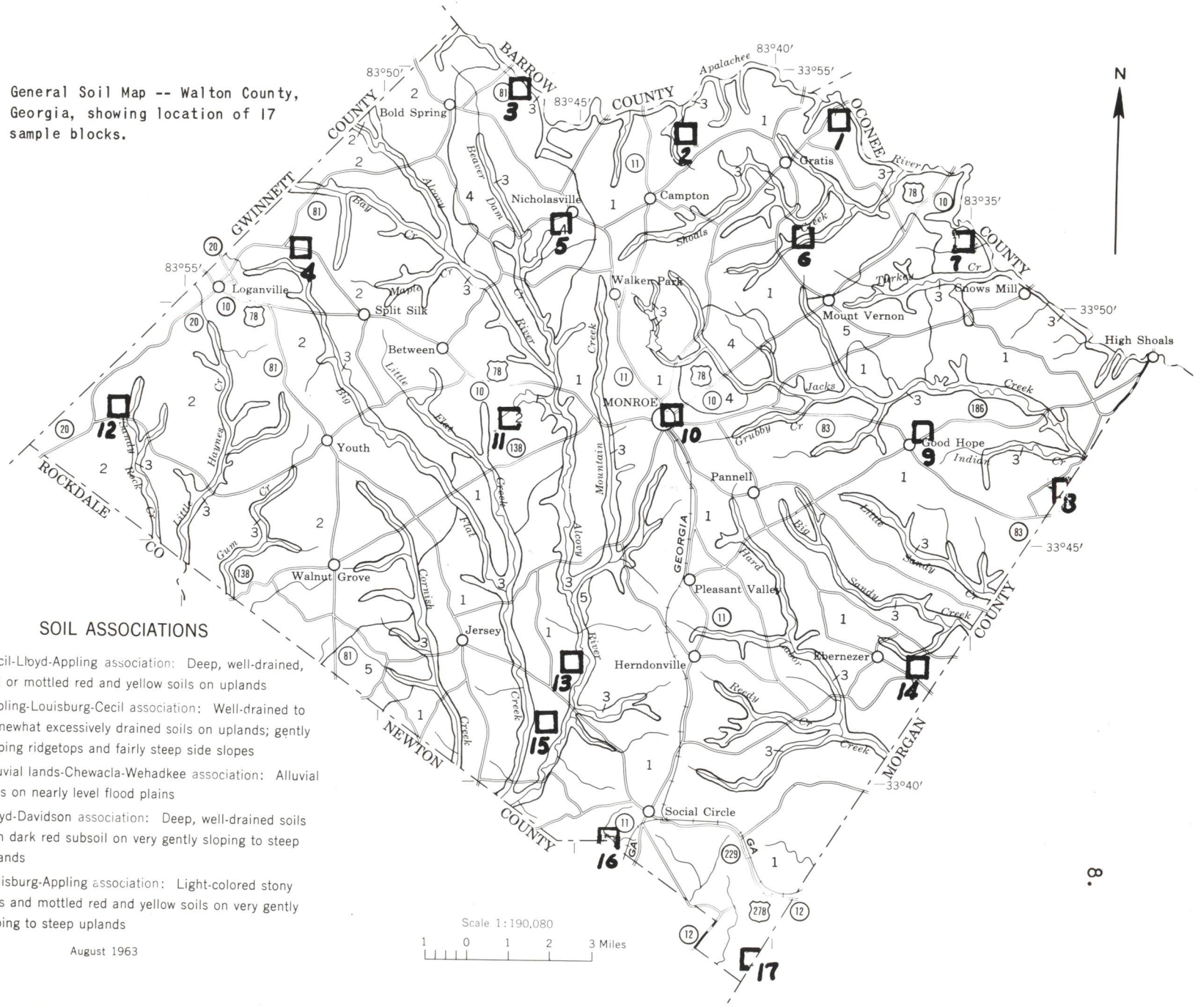
[4] Thomas, G. J., Jr. and Tate, R. J. Unpublished Soil Survey--Walton County, Georgia, 1962.

[5] Sketched by Payne, H. H., Soil Scientist, Soil Conservation Service, Milledgeville, Georgia.

Table 1. Temperature and precipitation data for Walton County, Georgia

Month	Temperature				Precipitation		
	Average daily maximum	Average daily minimum	2 years in 10 will have at least 4 days with--		Average monthly total	1 year in 10 will have--	
			Maximum temperature equal to or higher than	Minimum temperature equal to or lower than		Less than	More than
	°F	°F	°F	°F	Inches	Inches	Inches
January	56.7	34.5	73	20	4.72	2.0	9.3
February	59.5	35.5	74	22	4.57	1.7	7.9
March	66.0	40.2	81	26	5.52	2.8	9.6
April	75.8	48.3	87	35	4.26	1.6	8.8
May	84.3	57.1	94	44	3.32	.9	5.8
June	90.8	65.2	98	58	3.54	1.8	6.0
July	91.9	68.0	99	62	4.44	2.5	6.5
August	91.6	67.1	99	61	3.43	1.4	6.5
September	86.7	61.4	96	51	2.83	.8	5.0
October	77.4	49.8	87	36	2.48	.4	5.2
November	65.4	40.1	78	25	2.99	.8	7.8
December	56.7	34.2	72	19	4.33	1.3	8.0
Year	75.2	50.1	101	14	46.43	35.2	65.2

FIGURE 2. General Soil Map -- Walton County, Georgia, showing location of 17 sample blocks.



SOIL ASSOCIATIONS

1. Cecil-Lloyd-Appling association: Deep, well-drained, red or mottled red and yellow soils on uplands
2. Appling-Louisburg-Cecil association: Well-drained to somewhat excessively drained soils on uplands; gently sloping ridgetops and fairly steep side slopes
3. Alluvial lands-Chewacla-Wehadkee association: Alluvial soils on nearly level flood plains
4. Lloyd-Davidson association: Deep, well-drained soils with dark red subsoil on very gently sloping to steep uplands
5. Louisburg-Appling association: Light-colored stony soils and mottled red and yellow soils on very gently sloping to steep uplands

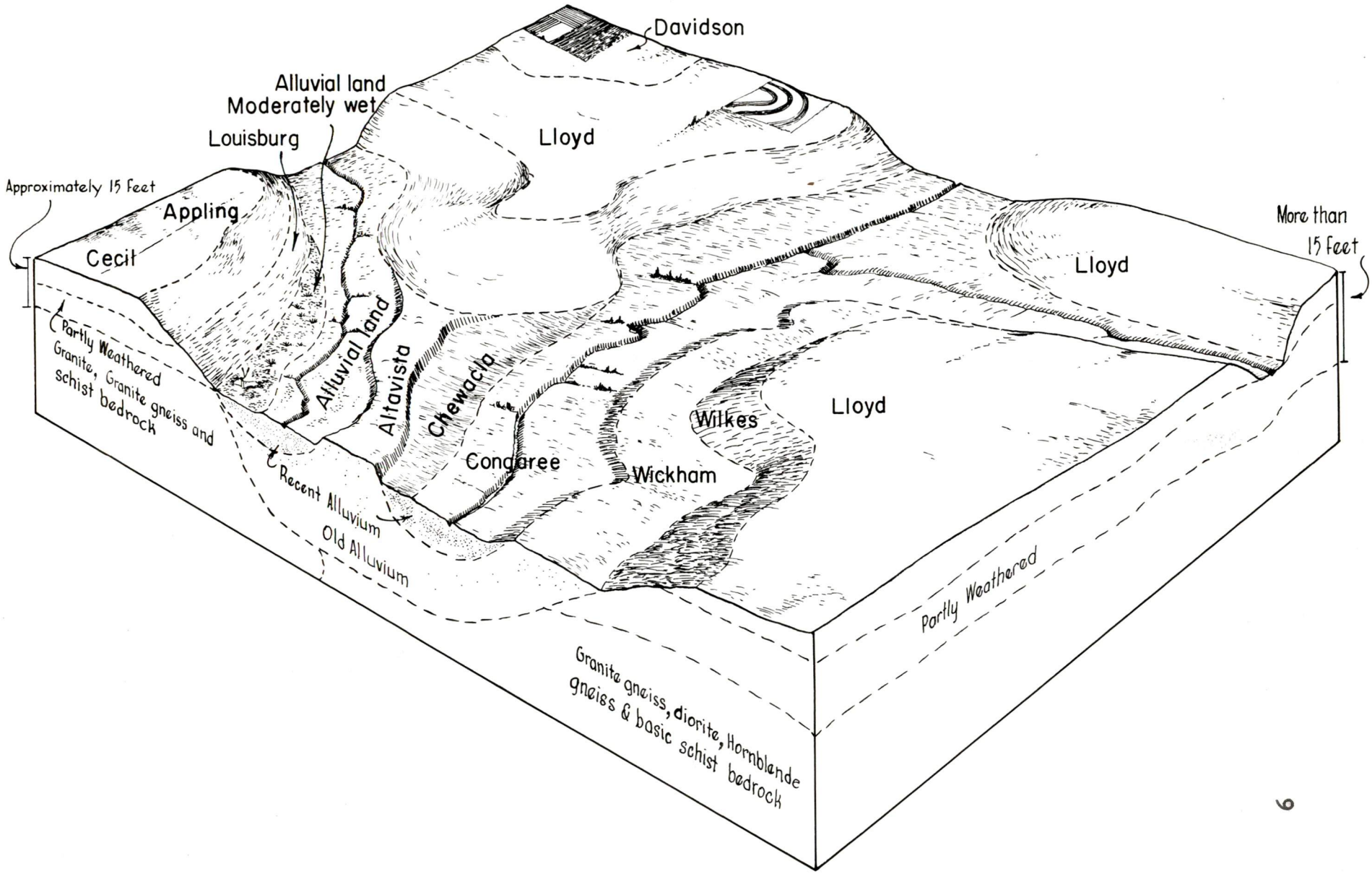


FIGURE 3. DIAGRAM SHOWING RELATIONSHIP OF DOMINANT SOILS OF THE SOUTHERN PIEDMONT

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Red-Yellow Podzolic Soils

Thorp and Smith (9) defined the Red-Yellow Podzolic great soil group as a group of well-developed, well-drained, acid soils that have a thin, organic A0 horizon and an organic mineral A1 horizon. The A1 horizon is underlain by a light-colored, bleached A2 horizon that, in turn, is underlain by a red, yellowish-red, or yellow, more clayey B horizon. The parent material is more or less siliceous. Coarse, reticulate streaks or mottles of red, brown, and light gray are generally in the deep horizons where the parent material is thick.

The Appling and Cecil soils are representative of the central concept of the Red-Yellow Podzolic group. A study of a few uneroded spots reveals that these soils originally had a dark-colored but thin A1 horizon and a well-defined A2 horizon. Plowing and erosion, however, have so disturbed these horizons over most of the acreage in Walton County that the present surface layer is either a mixture of the original A1 and A2 horizons, a mixture of the A2 and B horizons, or mostly material from the B horizon. In most areas that are not severely eroded, the surface soil is coarse sandy loam. The B horizon has moderate, medium, subangular blocky structure. It generally contains from 2 to 6 times as much clay as the A horizon and nearly twice as much clay as the C horizon. Clay films are common to prominent in the B2 horizon. The C horizon has weaker structure than the B horizon, is more mottled and variable in color, and is generally more strongly acid.

Perkins et al. (6) studied several Red-Yellow Podzolic soils, including Appling and Cecil of the Piedmont, and found that these soils generally have a low cation exchange capacity. Kaolinite is the predominant clay mineral.

The Lloyd soils also are classified as Red-Yellow Podzolic soils but lack a marked contrast between the A1 and A2 horizon, which is more characteristic of Reddish-Brown Lateritic soils. Reddish-Brown Lateritic soils are defined as having a dark reddish-brown mineral surface layer underlain by a dark red, clayey, illuvial B horizon. They lack a light-colored eluvial A2 horizon, and they have a B horizon that is redder than is characteristic of the Red-Yellow Podzolic soils (10).

The subsoil of Lloyd has the structure, clay, and color characteristics of the reddest Red-Yellow Podzolic soils, and the color is identical to that of Reddish-Brown Lateritic soils.

Transects

In order to correctly classify, map, and interpret soils, it is necessary to know the kind and extent of the various components of soil mapping units. Commonly the proportions of the different kinds of soils in each mapping unit are estimated by soil scientists from observations and notes made during the survey. At best, this method lacks a high degree of accuracy.

In a few instances, soil scientists make highly detailed soil maps and actually delineate each soil in selected small areas. Then, they measure the acreage of each kind of soil, and based on these data, estimate

the composition of the mapping units of a county or publication area. This method is costly, time-consuming, and in many instances, not feasible.

Johnson (4) describes two transect methods for accurately estimating the composition of soil mapping units:

> The line-intercept method: The surveyor selects the directions of transects at random. Starting at one edge of the area under study, he walks along a straight line in the pre-selected direction, counting his steps. He notes the number of steps taken at each boundary between kinds of soil and records the number in his notebook. Upon reaching a pre-selected point, or the far boundary of the study area, he stops, records the total number of steps at this point, and selects at random the direction of his next transect. After several transects have been measured in this fashion, the results are totalled and averaged to obtain the proportions of each kind of soil.
>
> Point-intercept method: As in the line-intercept method, the surveyor first selects at random the directions of his transects. Next, he walks each straight-line transect, counting his steps as before. In this case, though, he does not know or cannot recognize the boundaries between adjacent kinds of soil. Therefore he stops at regular intervals, say every 25, 50 or 100 steps, depending upon the size of the area and the predicted complexity of the soil pattern. At each stop he excavates or augers the soil, examines and classifies it. The kind of soil is recorded in the field notebook at each stop, opposite the number of that stop. After a number of transects have been completed with this procedure, the results are totalled. The number of steps assigned to each kind of soil is proportional to the area of each kind of soil within the study area.

The line intercept method, is quicker if the mapper can recognize at sight each kind of soil without boring on it. The point-intercept method is required if the soil boundaries are not easily observable.

Johnson (4) points out that transect methods in soil survey are equivalent to Rosiwal transects (7) of thin sections used by petrographers to determine the composition of rocks. He also points out that Chayes (1) has proved mathematically the validity of the technique.

Transects have been used recently in several of the Southern States to estimate the proportions of different kinds of soils in mapping units.

CHAPTER III

METHODS AND PROCEDURES

The statistical laboratory at Ames, Iowa divided a map of Walton County into 17 quadrangles and selected at random six square-shaped 160-acre blocks of land in each whole quadrangle. These sample blocks were numbered 1R through 6R. Some quadrangles along the edge of the county were not entirely within Walton County and fewer than six samples were selected in these. This set of samples was mapped individually for the conservation needs inventory by soil scientists of the Soil Conservation Service. Because they were mapped individually rather than by progressive mapping, these blocks may not be representative of the mapping in the county.

The statistical laboratory also selected an alternate set of randomized samples using the same procedure described above and numbered these sample blocks 1B through 6B in each quadrangle. This set was not needed in the conservation needs inventory and therefore was not mapped until the remainder of the county was surveyed. These blocks represent the progressive mapping in the county. All of the samples numbered 1B, from the alternate set, were selected for this study giving a total of 17 sample blocks. Except for three, the samples are square-shaped and 160 acres in size. Three blocks are along the county line and a portion of their acreage is outside of Walton County. Only the acreage inside the county was used for this study. Figure 2 shows the general location of the 17 blocks. For the purpose of this study they have been numbered consecutively 1 through 17.

The boundaries of each of the 17 randomized sample blocks were placed on soil maps (scale of 4 inches to the mile), which have an aerial photographic background. Two diagonal lines were drawn across each block except two. Sample block 10 is located inside the city limits of Monroe, Georgia. Because of the numerous buildings in this built-up urban area, it was not feasible to make a study of this block. Block 8 is located along the county line and less than half of it is in Walton County. For this block, only one diagonal line was drawn because the other diagonal line was outside the county. Straight-line transects, each about 0.7 mile long, were made along 31 diagonal lines. The point-intercept method was used because the boundaries between Appling, Cecil, and Lloyd soils are not readily observable without excavating or boring in the soils.

Each mapping unit of the Appling, Cecil, and Lloyd series along each transect line was studied. The corner of the block was located on the ground. If the corner was on a mapping unit of one of the three series being studied, 3 paces (about 15 feet using 2 steps to the pace) were stepped off along the transect line and the pedon (5) was checked at this stop. Subsequent checks of pedons were made every 33 paces (about 165 feet) along the transect until the boundary of the mapping unit was reached. Upon reaching the boundary of another mapping unit of either Appling, Cecil, or Lloyd, 3 paces were stepped off, the pedon checked, and subsequent checks were made every 33 paces until the soil mapping unit boundary was reached. This procedure was repeated along the transect line to the corner of the block. Each diagonal line was

transected as described previously. In those cases where a stop coincided with a man-made structure such as a road, ditch, terrace or house, the soil was checked 3 paces to the left of the structure.

At each stop, the soil was excavated usually with a bucket-type soil auger and the pedon was studied and classified. The slope of the immediate area was determined. Where questionable, it was measured with an Abney level. The name of the pedon and other pertinent notes about the site were recorded at each stop.

The official series descriptions were used as a guide in classifying each site. In this study, no attempt was made to differentiate between "coarse sandy loam" and "sandy loam" surface layers or between "clay loam" and "sandy clay loam" surface layers. For example, if a soil were mapped as having a coarse sandy loam surface layer, but had a sandy loam surface layer instead, it still was counted as being mapped correctly as far as the texture of the surface layer was concerned.

CHAPTER IV

RESULTS

Description of Soils

Representative descriptions, as determined by field study, for the important soil types of Walton County follow. Colors are for moist soils.

Appling coarse sandy loam

The following description is typical for the eroded mapping units of Appling coarse sandy loam:

Ap — 0 to 7 inches, yellowish-brown (10YR 5/4 to 5/6) coarse sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary; 4 to 9 inches thick.

B1 — 7 to 13 inches, yellowish-brown (10YR 5/8) sandy clay loam; weak, medium, subangular blocky structure; friable; strongly acid; gradual, smooth boundary; 4 to 8 inches thick.

B21t — 13 to 20 inches, strong brown (7.5YR 5/6) clay; moderate, medium subangular blocky structure; firm; few discontinuous clay films on vertical ped faces; strongly acid; gradual, wavy boundary; 0 to 7 inches thick.

B22t — 20 to 30 inches, yellowish-red (5YR 5/8) clay mottled with red (2.5YR 4/6), olive yellow (2.5Y 6/6), and strong

brown (7.5YR 5/6); mottles are common, medium and distinct; moderate, medium subangular blocky structure; firm; clay films on many ped faces; strongly acid; gradual, wavy boundary; 8 to 15 inches thick.

B3 30 to 36 inches, yellowish-red (5YR 4/8) sandy clay to sandy clay loam mottled with olive yellow (2.5Y 6/6) and red (2.5YR 5/6); moderate, medium subangular blocky structure; firm; thin discontinuous clay films on a few vertical ped faces; strongly acid; gradual, wavy boundary; 5 to 12 inches thick.

C 36 to 54 inches +, mottled yellowish-red (5YR 4/8), brownish-yellow (10YR 6/6), red (2.5YR 5/6), and olive-yellow (2.5Y 6/6) weathered material that breaks easily into sandy clay loam; structureless; friable; very strongly acid.

Range in Characteristics. The Ap horizon ranges from grayish brown to yellowish brown in color and from coarse sandy loam to sandy loam in texture. The B horizon ranges from yellowish brown and strong brown to yellowish red; splotching or mottling occurs at a depth of 18 to 26 inches from the surface. The texture of the B2 horizon is clay or sandy clay.

Cecil coarse sandy loam

The following is typical for the eroded mapping units of Cecil coarse sandy loam:

Ap — 0 to 6 inches, dark yellowish-brown (10YR 4/4) coarse sandy loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary; 4 to 8 inches thick.

B1 — 6 to 9 inches, yellowish-red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; many fine roots; strongly acid; gradual, wavy boundary; 2 to 6 inches thick.

B2t — 9 to 30 inches, red (2.5YR 4/6 or 4/8) clay; moderate, medium, subangular blocky structure; firm; thin clay films on some ped faces; few fine mica flakes; strongly acid; gradual, wavy boundary; 15 to 30 inches thick.

B3 — 30 to 42 inches, red (2.5YR 4/6) sandy clay to sandy clay loam; weak fine subangular blocky structure; firm to friable; few fine mica flakes; gradual, wavy boundary; strongly acid; 10 to 22 inches thick.

C — 42 to 60 inches +, reddish partly weathered material that crushes easily into sandy clay loam; structureless; friable; strongly acid.

Range in Characteristics. The Ap horizon is dominantly dark yellowish brown (10YR 4/4) or brown to dark brown (10YR 4/3). It

ranges from dark grayish brown to yellowish brown. The B2 horizon is red (2.5YR 4/8 to 10R 4/6) clay or sandy clay.

A sizeable acreage of the mapping units of this soil type, as mapped, has a reddish-brown (5YR 5/4 or 4/4) Ap horizon and red (2.5YR 4/6) B horizon. These areas are within the range of the Lloyd series.

Cecil sandy clay loam

This soil type is recognized only in areas that are severely eroded. The Ap horizon consists chiefly of the upper B horizon and typically is yellowish-red sandy clay loam. It ranges to red in color. The B1 horizon has been mixed with the Ap horizon and is not observable. The B2 horizon is red clay or sandy clay.

Lloyd sandy loam

The following is typical of the eroded mapping units of Lloyd sandy loam:

Ap 0 to 6 inches, reddish-brown (5YR 4/4) sandy loam; weak, fine granular structure; friable; many fine roots; strongly acid; abrupt, wavy boundary; 4 to 8 inches thick.

B1 6 to 12 inches, dark red (2.5YR 3/6) clay loam to sandy clay loam; weak, medium, subangular blocky structure; friable; some roots; strongly acid; gradual, wavy boundary; 3 to 8 inches thick.

B2t 12 to 32 inches, dark red (2.5YR 3/6) clay; moderate, medium, angular and subangular blocky structure; clay films on some ped faces, firm; few fine roots; strongly

acid; gradual, wavy boundary; 15 to 35 inches thick.

B3 32 to 48 inches, dark red (2.5YR 3/6) to red (2.5YR 4/6) clay loam; moderate, medium, subangular blocky structure; friable; few fragments of partially weathered rock; strongly acid; clear, wavy boundary; 8 to 24 inches thick.

C 48 to 60 inches +, red to dark red partly weathered material, streaked with brownish yellow, that crushes easily into clay loam or sandy clay loam; structureless; friable; strongly acid.

Range in Characteristics. The Ap horizon ranges from reddish brown and dark brown to dark reddish brown. The B2 horizon in almost all of the acreage is dark red clay but in a few areas it ranges to red. Also in a few areas it is clay loam in texture.

Lloyd clay loam

This soil type is only on severely eroded areas. The Ap horizon consists mostly of the upper B horizon and ranges from reddish brown and dark reddish brown to dark red. The B2 horizon in almost all of the area is dark red clay, but in a few areas ranges to red. Many of the profiles are similar to Davidson clay loam.

Results of the Transects

Table 2 gives a summary of soil checks at 518 stops in Walton County. Table 3 summarizes 37 stops on Appling soils, 301 on Cecil soils, and 180 on Lloyd soils.

Table 2. Summary of mapping of three soil series in Walton County, Georgia, with results of point transect checks

	Stops	% of Total Stops
Total	518	100.0
Soil correctly mapped (soil type, slope, and erosion)	305	58.9
Surface texture correct	423	81.7
Slope correct	470	90.7
Erosion correct	400	77.2
Soil type correct	330	63.7
Soil series correct	382	73.8

Table 3. Comparison of mapping for the three dominant soil series in Walton County, Georgia

	Stops	% of Total Stops
APPLING		
Total	37	100.0
Soil correctly mapped (soil type, slope and erosion)	22	59.5
Surface texture correct	28	75.7
Slope correct	31	83.8
Erosion correct	25	67.6
Soil type correct	23	62.2
Soil series correct	28	75.7
CECIL		
Total	301	100.0
Soil correctly mapped (soil type, slope, and erosion)	181	60.1
Surface texture correct	249	82.7
Slope correct	268	89.0
Erosion correct	230	76.4
Soil type correct	197	65.5
Soil series correct	232	77.1

Table 3. (CONTINUED)

	Stops	% of Total Stops
LLOYD		
Total	180	100.0
Soil correctly mapped (soil type, slope and erosion)	102	56.7
Surface texture correct	146	81.1
Slope correct	171	95.0
Erosion correct	145	80.6
Soil type correct	110	61.1
Soil series correct	122	67.8

Tables 4 through 6 show results for the transects on mapping units of the Appling series; tables 7 through 13 for Cecil; and tables 14 through 22 for the Lloyd series. Of the 31 mapping units in these three series in Walton County, transects were made across 19 of them. The transect lines crossed several areas of each of the more extensive mapping units.

Ten of the 19 units were checked fewer than 17 times and because of this the estimates have a low degree of reliability, statistically. These stops, however, are helpful in determining the reliability of the soil maps from the standpoint of surface texture, slope, erosion, soil type, and series. The number of stops on the other nine mapping units ranged from 17 to 92; 65 or more stops were made on four of them.

Table 4. Composition of mapping unit:

Appling coarse sandy loam, 2 to 6 % slopes, eroded
(Based on 17 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Appling coarse sandy loam, 2 to 6 % slopes, eroded	14	82.3
Appling coarse sandy loam, 2 to 6 % slopes	1	5.9
Colfax sandy loam, 2 to 6 % slopes	1	5.9
Louisburg coarse sandy loam, 2 to 6 % slopes	1	5.9
TOTAL	17	100.0

Table 5. Composition of mapping unit:

Appling coarse sandy loam, 6 to 10 % slopes, eroded
(Based on 16 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Appling coarse sandy loam, 6 to 10 % slopes, eroded	8	50.0
Appling sandy clay loam, 2 to 6 % slopes, severely eroded	1	6.2
Cecil coarse sandy loam, 6 to 10 % slopes, eroded	3	18.8
Colfax sandy loam, 2 to 6 % slopes	2	12.5
Louisburg coarse sandy loam, 6 to 10 % slopes	1	6.2
Rock outcrop	1	6.2
TOTAL	16	100.0

Table 6. Composition of mapping unit:

Appling sandy clay loam, 6 to 10 % slopes, severely eroded
(Based on 4 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Appling coarse sandy loam, 6 to 10 % slopes, eroded	2	50.0
Appling coarse sandy loam, 2 to 6 % slopes, eroded	2	50.0
TOTAL	4	100.0

Table 7. Composition of mapping unit:

Cecil coarse sandy loam, 2 to 6 % slopes, eroded
(Based on 65 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil coarse sandy loam, 2 to 6 % slopes, eroded	34	52.3
Cecil coarse sandy loam, 6 to 10 % slopes, eroded	3	4.6
Cecil sandy clay loam, 2 to 6 % slopes, severely eroded	7	10.8
Cecil gravelly coarse sandy loam, 2 to 6 % slopes, eroded	5	7.7
Appling coarse sandy loam, 2 to 6 % slopes	6	9.2
Appling coarse sandy loam, 2 to 6 % slopes, eroded	2	3.1
Lloyd sandy loam, 2 to 6 % slopes, eroded	8	12.3
TOTAL	65	100.0

Table 8. Composition of mapping unit:

Cecil coarse sandy loam, 6 to 10 % slopes, eroded
(Based on 26 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil coarse sandy loam, 6 to 10 % slopes, eroded	11	42.3
Cecil coarse sandy loam, 10 to 15 % slopes, eroded	1	3.9
Cecil sandy clay loam, 6 to 10 % slopes, severely eroded	3	11.5
Cecil sandy clay loam, 10 to 15 % slopes, severely eroded	1	3.9
Appling coarse sandy loam, 6 to 10 % slopes, eroded	1	3.9
Local alluvial land, moderately well drained	1	3.9
Lloyd sandy loam, 6 to 10 % slopes, eroded	5	19.2
Lloyd sandy loam, 2 to 6 % slopes, eroded	1	3.9
Lloyd clay loam, 2 to 6 % slopes, severely eroded	2	7.7
TOTAL	26	100.0

Table 9. Composition of mapping unit:

Cecil coarse sandy loam, 10 to 15 % slopes, eroded
(Based on 12 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil coarse sandy loam, 10 to 15 % slopes, eroded	7	58.3
Cecil coarse sandy loam, 6 to 10 % slopes, eroded	2	16.7
Local alluvial land, well drained	1	8.3
Louisburg stony coarse sandy loam, 10 to 15 % slopes	2	16.7
TOTAL	12	100.0

Table 10. Composition of mapping unit:

Cecil coarse sandy loam, 15 to 25 % slopes, eroded
(Based on 4 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil coarse sandy loam, 15 to 25 % slopes, eroded	2	50.0
Cecil coarse sandy loam, thin solum, 15 to 25 % slopes, eroded	1	25.0
Lloyd clay loam, 10 to 15 % slopes, severely eroded	1	25.0
TOTAL	4	100.0

Table 11. Composition of mapping unit:

Cecil sandy clay loam, 2 to 6 % slopes, severely eroded
(Based on 78 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil sandy clay loam, 2 to 6 % slopes, severely eroded	50	64.1
Cecil sandy clay loam, 6 to 10 % slopes, severely eroded	4	5.1
Cecil sandy clay loam, 2 to 6 % slopes, very severely eroded	4	5.1
Cecil gravelly sandy clay loam, 2 to 6 % slopes, severely eroded	2	2.6
Cecil coarse sandy loam, 2 to 6 % slopes, eroded	3	3.9
Cecil coarse sandy loam, 6 to 10 % slopes, eroded	2	2.6
Appling sandy clay loam, 2 to 6 % slopes, severely eroded	3	3.8
Appling coarse sandy loam, 2 to 6 % slopes, eroded	3	3.8
Lloyd clay loam, 2 to 6 % slopes, severely eroded	5	6.4
Lloyd sandy loam, 2 to 6 % slopes, eroded	2	2.6
TOTAL	78	100.0

Table 12. Composition of mapping unit:

Cecil sandy clay loam, 6 to 10 % slopes, severely eroded
(Based on 92 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil sandy clay loam, 6 to 10 % slopes, severely eroded	60	65.2
Cecil sandy clay loam, 6 to 10 % slopes, very severely eroded	4	4.3
Cecil sandy clay loam, 2 to 6 % slopes, severely eroded	5	5.4
Cecil gravelly sandy clay loam, 6 to 10 % slopes, severely eroded	1	1.1
Cecil gravelly coarse sandy loam, 6 to 10 % slopes, eroded	2	2.2
Cecil coarse sandy loam, 6 to 10 % slopes, eroded	5	5.4
Cecil coarse sandy loam, 10 to 15 % slopes, eroded	2	2.2
Appling sandy clay loam, 10 to 15 % slopes, severely eroded	3	3.3
Colfax sandy loam, 2 to 6 % slopes	2	2.2
Lloyd clay loam, 6 to 10 % slopes, severely eroded	6	6.5
Louisburg stony coarse sandy loam, 6 to 10 % slopes	2	2.2
TOTAL	92	100.0

Table 13. Composition of mapping unit:

Cecil sandy clay loam, 10 to 15 % slopes, severely eroded
(Based on 24 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Cecil sandy clay loam, 10 to 15 % slopes, severely eroded	17	70.8
Cecil sandy clay loam, 6 to 10 % slopes, severely eroded	2	8.3
Cecil sandy clay loam, 15 to 25 % slopes, severely eroded	1	4.2
Cecil coarse sandy loam, 10 to 15 % slopes, eroded	1	4.2
Local alluvial land, well drained	2	8.3
Madison sandy clay loam, 10 to 15 % slopes, very severely eroded	1	4.2
TOTAL	24	100.0

Table 14. Composition of mapping unit:

Lloyd sandy loam, 2 to 6 % slopes, eroded
(Based on 11 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd sandy loam, 2 to 6 % slopes, eroded	6	54.5
Lloyd clay loam, 2 to 6 % slopes, severely eroded	1	9.1
Cecil coarse sandy loam, 2 to 6 % slopes, eroded	2	18.2
Cecil sandy clay loam, 2 to 6 % slopes, severely eroded	2	18.2
TOTAL	11	100.0

Table 15. Composition of mapping unit:

Lloyd sandy loam, 6 to 10 % slopes, eroded
(Based on 10 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd sandy loam, 6 to 10 % slopes, eroded	5	50.0
Lloyd clay loam, 2 to 6 % slopes, severely eroded	1	10.0
Lloyd clay loam, 6 to 10 % slopes, severely eroded	2	20.0
Lloyd stony loam, 6 to 10 % slopes, eroded	1	10.0
Cecil sandy clay loam, 6 to 10 % slopes, severely eroded	1	10.0
TOTAL	10	100.0

Table 16. Composition of mapping unit.

Lloyd sandy loam, 10 to 15 % slopes, eroded
(Based on 3 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd sandy loam, 10 to 15 % slopes, eroded	1	33.3
Davidson clay loam, 10 to 15 % slopes, severely eroded	2	66.7
TOTAL	3	100.0

Table 17. Composition of mapping unit:

Lloyd sandy loam, 15 to 25 % slopes, eroded
(Based on 6 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd sandy loam, 15 to 25 % slopes, eroded	3	50.0
Davidson clay loam, 15 to 25 % slopes, severely eroded	3	50.0
TOTAL	6	100.0

Table 18. Composition of mapping unit:

Lloyd clay loam, 2 to 6% slopes, severely eroded
(Based on 43 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd clay loam, 2 to 6% slopes, severely eroded	20	46.5
Lloyd clay loam, 2 to 6% slopes, very severely eroded	1	2.3
Lloyd sandy loam, 2 to 6% slopes, eroded	1	2.3
Davidson clay loam, 2 to 6% slopes, severely eroded	10	23.3
Davidson loam, 2 to 6% slopes, eroded	7	16.3
Cecil sandy clay loam, 2 to 6% slopes, severely eroded	4	9.3
TOTAL	43	100.0

Table 19. Composition of mapping unit:

Lloyd clay loam, 6 to 10 % slopes, severely eroded
(Based on 66 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd clay loam, 6 to 10 % slopes, severely eroded	42	63.7
Lloyd clay loam, 10 to 15 % slopes, severely eroded	2	3.0
Lloyd clay loam, 6 to 10 % slopes, very severely eroded	1	1.5
Lloyd stony clay loam, 6 to 10 % slopes, severely eroded	1	1.5
Lloyd sandy loam, 6 to 10 % slopes, eroded	2	3.0
Cecil sandy clay loam, 6 to 10 % slopes, severely eroded	5	7.6
Cecil gravelly coarse sandy loam, 6 to 10 % slopes, eroded	3	4.6
Colfax sandy loam, 2 to 6 % slopes, eroded	1	1.5
Davidson clay loam, 6 to 10 % slopes, severely eroded	8	12.1
Louisburg loamy coarse sand, 6 to 10 % slopes	1	1.5
TOTAL	66	100.0

Table 20. Composition of mapping unit:

Lloyd clay loam, 10 to 15 % slopes, severely eroded
(Based on 29 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd clay loam, 10 to 15 % slopes, severely eroded	19	65.5
Lloyd clay loam, 2 to 6 % slopes, severely eroded	1	3.5
Lloyd sandy loam, 10 to 15 % slopes, eroded	3	10.3
Cecil sandy clay loam, 10 to 15 % slopes, severely eroded	2	6.9
Davidson clay loam, 10 to 15 % slopes, severely eroded	1	3.5
Davidson loam, 2 to 6 % slopes, eroded	2	6.9
Madison clay loam, 10 to 15 % slopes, severely eroded	1	3.5
TOTAL	29	100.0

Table 21. Composition of mapping unit:

Lloyd clay loam, 15 to 25 % slopes, severely eroded
(Based on 10 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd clay loam, 15 to 25 % slopes, severely eroded	4	40.0
Davidson clay loam, 15 to 25 % slopes, severely eroded	3	30.0
Lloyd clay loam, 6 to 10 % slopes, severely eroded	2	20.0
Lloyd clay loam, 15 to 25 % slopes, very severely eroded	1	10.0
TOTAL	10	100.0

Table 22. Composition of mapping unit:

Lloyd-Gullied land complex, 10 to 15 % slopes
(Based on 2 stops)

Components of mapping unit as determined by field study	Stops	% of Mapping Unit
Lloyd clay loam, 10 to 15 % slopes, very severely eroded	2	100.0
TOTAL	2	100.0

CHAPTER V

DISCUSSION

The Survey Manual (8) states a taxonomic unit is a mental concept that man carries with him to facilitate his thought about objects so great in numbers that he cannot comprehend them individually. The soil scientist uses the taxonomic soil unit to help him remember something about the numerous soil sites or pedons studied. He groups the pedons examined at these points into taxonomic soil units and describes the limits of variation.

A soil mapping unit has the taxonomic unit name but also may include areas of other soils that cannot be separated because of the scale of the map. Soil scientists commonly state that a mapping unit can include a small proportion of other soils, up to 15 %. The Survey Manual (8) supports this statement.

One "ideal system of mapping" might be a system in which the total inclusions in a mapping unit would not exceed 15% of the total acreage. The transects revealed that all but one of the 19 mapping units studied of the Appling, Cecil, and Lloyd series had more than 15% inclusions of other soils.

The inclusions in the mapping units of Appling coarse sandy loam ranged from about 17% on 2 to 6% slopes to 50% on 6 to 10% slopes. It is no surprise that the less sloping mapping unit of Appling is more uniform and has a lower proportion of inclusions than does the mapping unit on 6 to 10% slopes.

At several stops on the stronger slopes the profile was thin and pedons studied were intergrading toward Louisburg soils, which lack a thick distinct B horizon. One stop was on an outcrop of rock. At some stops there were thick red soil profiles of Cecil. Characteristically near the toe slopes, where there is some seepage, are spots of the somewhat poorly drained Colfax soils. According to the transects, they comprise 12.5% of the mapping unit Appling coarse sandy loam, 6 to 10% slopes, eroded. Most of these areas of Colfax appeared to be too small to delineate at a scale of 4 inches to the mile.

Inclusions make up about 48% of the acreage of the eroded phase of Cecil coarse sandy loam on 2 to 6% slopes, 58% on 6 to 10% slopes, and 42% on 10 to 15 % slopes. The Appling soils comprise 12% of the acreage on 2 to 6% slopes but were not observed in any of the Cecil mapping units on slopes of more than 10%. Small areas of Appling soils, up to one-half acre in size, are common in the Cecil mapping units with slopes of less than 8%. These lighter colored areas of Appling are readily observed where a field of Cecil has been freshly plowed.

Soils mapped as "eroded" on the Piedmont normally have been eroded to the extent that ordinary tillage reaches through the remaining A horizon into the B horizon. The surface layer over most of a delineated area is a mixture of the original A and the upper B horizons. Most delineations of eroded soils characteristically are spotted with patches where the B horizon is exposed. This is true of the eroded phases of Cecil coarse sandy loam. Severely eroded spots comprise from 11 to 16% of the two most extensive mapping units of Cecil coarse sandy loam.

The proportion of inclusions, collectively, in the severely eroded mapping units of Cecil ranges from about 35% on slopes of 2 to 10% to 29% on 10 to 15% slopes. None of the inclusions, however, comprise more than about 8% of the acreage. Very severely eroded areas comprise about 5% of these mapping units and many of the other stops at sites mapped as "severely eroded" were almost as typical for very severely eroded phases. Some very severely eroded areas could have been mapped separately.

Lloyd soils are extensive inclusions in both eroded and severely eroded mapping units of Cecil. This is partly because of the close resemblance between the official series descriptions[6] of Cecil and Lloyd. According to the official descriptions, the B2 horizon of both series is thick and clayey. It is centered on red (2.5YR 4/6) for Cecil and red (2.5YR 4/8) for Lloyd. The B2 horizon can range to red (10R 4/6) for Cecil and to dark red (10R 3/6) for Lloyd. The B1 horizon of Cecil ranges from strong brown (7.5YR 5/6) to red (2.5YR 4/6) but is centered on yellowish red (5YR 5/6). The B1 horizon of Lloyd is centered on red (2.5YR 4/6). Cecil and Lloyd have similar B3 horizons both in color and texture. This means that the control sections (B horizons) of both series can be and commonly are identical.

The A1 and A2 horizons for most of the acreage of Cecil and Lloyd soils have been mixed by tillage. The two series, therefore, are separated

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[6] Official series descriptions for Appling, Cecil, Lloyd and Davidson are in the Appendix.

primarily on basis of difference in color of an Ap horizon. The Ap of Cecil, as mapped in Walton County, is dominantly dark-yellowish brown (10YR 4/4) or brown to dark brown (10YR 4/3). The Ap of Lloyd is dominantly reddish brown (5YR 4/4) in Walton County but ranges from brown through dark reddish brown.

The high proportion of Lloyd inclusions in the Cecil mapping units appears to be caused partly by an overlap in the Cecil and Lloyd official series descriptions and partly by the way the survey party mapped the soils. It is difficult to separate the Cecil soils from Lloyd soils that have red B horizons because the chief mappable difference is the color of the Ap horizon. Apparently the soil scientists in Walton County tried to map the well-drained soils with a red clayey B horizon as Cecil and the well-drained soils with a dark red clayey B horizon as Lloyd or Davidson. This seems logical. If the official series descriptions were revised along those lines, the proportion of the Lloyd inclusions in the Cecil mapping units would be small.

Delineations of the Lloyd soils do not stand out well from those of Davidson. The chief difference between Lloyd and Davidson, as mapped in Walton County, is the surface layer. The Ap horizon of Davidson is dark reddish-brown (5YR 3/4) to dusky red (10R 3/4) and the Ap of Lloyd is reddish-brown (5YR 4/4), dark brown (7.5YR 4/4) or dark reddish-brown (5YR 3/4). The severely eroded phases of Lloyd and Davidson soils generally have similar textured surface layers. The less eroded phases of the Lloyd soils commonly have a sandy loam Ap horizon, whereas, the Davidson soils have a loam Ap horizon. This is not always true, though.

Anyway, this would be a type rather than a series distinction.

The transects showed that Davidson soils comprise about 40% of the mapping unit Lloyd clay loam, 2 to 6% slopes, severely eroded. They comprise more than 11% of at least two other extensive Lloyd mapping units. Inclusions of Davidson comprise as much as 50% of two of the less extensive Lloyd mapping units, but this estimate is based on only a few checks. Many of the other stops that were counted as Lloyd soils resemble Davidson about as much as Lloyd. At best, most of the acreage as mapped is a complex or undifferentiated units of Lloyd and Davidson soils.

A question that needs to be answered is how does a mapper tell a severely eroded Lloyd soil from a severely eroded Davidson soil? Both soils can have almost identical B horizons and the soils have eroded to the extent that the plow layer is in the upper B horizon.

The Lloyd series was set up to cover the transition between the red Cecil soils developed chiefly in residuum from acidic rocks and the dark red Davidson soils developed chiefly in residuum from basic rocks. Some soil scientists maintain that the surface layer of Lloyd soils changes more in color on wetting and drying than does that of Davidson. Others try to separate the Lloyd soils on the basis that they have developed from both acidic and basic rocks whereas Davidson soils have developed from basic rocks. Neither of these clues is 100% mappable. In the first place, the soil scientist may map the area in a dry period. He can add water until the soil is moist and therefore read the color while the soil is both dry and moist. If he maps the soil while moist or wet, however, he has no quick way of obtaining a color on the dry soil.

It appears that in Walton County, the landscapes could be handled better by expanding the official series description for Cecil to cover reddish-brown Ap horizons over red clayey B horizons and to expand the Davidson official description to cover reddish-brown surface layers over dark red clayey B horizons. This would eliminate the need for the Lloyd series.

The transects reflect that slope was the most accurate determination, percentage wise, in the mapping of Walton County; it was mapped correctly at 91% of the 518 stops. Surface texture was correct at 82% of the stops; erosion, 77%; soil series, 74%; soil type, 64%; and all of these together were correct at 59% of the stops.

The study pointed out that a large number of areas, less than 1 acre in size, of different soils are in almost every delineation mapped on Piedmont uplands. It is not feasible to separate areas of this size on a map at the scale of 4 inches to the mile. The transects proved, however, that but few of the mapping units have enough acreage of any one inclusion to merit adding the name to the mapping unit. The exception to this is that a few of the Lloyd mapping units have more than a 15% inclusion of Davidson soils and Davidson should have been added to the name of these mapping units.

Based on this study, it appears that an ideal system of mapping for a medium-intensity soil survey would allow about 30 to 40% of inclusions. These inclusions result more from variability of soil than from errors in mapping.

Although many of the mapping units have 35% or more inclusions of other soils, the proportion of included soils that would require different interpretations from the dominant soil in each mapping unit is small. This is significant. It means that the soil scientists did a good job of grouping pedons that can be interpreted similarly. For example, inclusions make up about 36% of the total acreage of the mapping unit Lloyd clay loam, 6 to 10% slopes, severely eroded. The 1.5% inclusion of Colfax soils and the 1.5% inclusion of Louisburg soils are much more important from an interpretive standpoint than the more than 12% inclusion of Davidson soils. The Colfax soils are less well drained, receive seepage, and have a seasonably high water table. The Louisburg soils are moderately shallow to bedrock. Neither the Colfax or the Louisburg soils would be nearly as desirable as the Lloyd soils for an industrial site or for a dwelling requiring a septic tank drainage field. On the other hand, the Lloyd and Davidson soils with the same degree of erosion and on similar slopes would have about the same interpretations for most uses.

Although, as stated earlier, slope was the most accurate determination, the slope inclusions cause some of the larger problems in interpreting the mapping units for specified uses. The mapping unit Lloyd clay loam, 6 to 10% slopes, severely eroded, contained a 3% inclusion of 10 to 15% slopes. These areas with stronger slopes will have greater limitations for many agricultural, urban, and recreational uses than most of the remainder of the mapping unit's acreage.

Soil maps commonly are more accurate in open areas than in woods. In general, there appears to be but little, if any, difference between the mapping accuracy of open areas and of wooded areas in Walton County.

It was noted that with but few exceptions, the field name and the correlated name of the mapping units were the same.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Soils of the Appling, Cecil, and Lloyd series comprise about 80% of Walton County, according to a medium-intensity soil survey completed in 1962. Composition of 19 mapping units of these three series were studied along 31 straight-line transects (each about 0.7 mile long) across 16 randomly selected sample blocks of land.

Slope was mapped correctly at 91% of the 518 stops; surface texture, 82%; erosion, 77%; soil series, 74%; soil type, 64%; and all of these, together, were correct at 59% of the stops.

Based on 518 soil checks, the mapping units contain more than 15% inclusions of other soils. A range of 30 to 40% of inclusions seems to be a more realistic estimate for medium-intensity soil surveys.

Some of the Cecil mapping units contain a large inclusion of soils within the Lloyd series; many of the Lloyd mapping units contain a large inclusion of Davidson soils. More field clues are needed if the mappers are to cleanly separate these soils consistently, especially the severely eroded phases of Lloyd and Davidson. The official series description of Lloyd appears to overlap to some extent with both the Cecil and Davidson descriptions. One possibility is to revise the Cecil and Davidson official series descriptions to cover the range of characteristics now covered in Lloyd, and make the latter an inactive series.

It was noted that most mapping units on a typical landscape of the Piedmont uplands contain numerous small areas, less than 1 acre in size, of different soils. These areas must be included with the dominant soil in a mapping unit because it is not feasible to separate them on maps at a scale of 4 inches to the mile.

The mapping of Walton County is highly reliable from the standpoint of grouping pedons that can be interpreted similarly. The proportion of included soils that would require different interpretations from the dominant soil in each mapping unit generally is small.

LITERATURE CITED

LITERATURE CITED

1. Chayes, F. Petrographic Modal Analysis. John Wiley and Sons, New York. 1956.

2. Fenneman, N. M. Physiography of Eastern United States. McGraw-Hill, New York and London. 1939.

3. Georgia Division of Mines, Mining and Geology. Geologic Map of Georgia, 1939.

4. Johnson, W. M. Transect methods for determination of the composition of soil mapping units. Soil Survey Field Letter, USDA, pp. 9-11. 1961.

5. Johnson, W. M. The Pedon and the Polypedon. Soil Sci. Soc. Am. Proc. 27: 212-215. 1963.

6. Perkins, H. F., England, C. B. and Gibbs, J. A. Some morphological, physical, chemical and clay mineral characteristics of several agriculturally important Georgia soils. Georgia Agr. Expt. Sta. Tech. Bull. N.S. 26, 1962.

7. Rosiwal, A. Uber Geometrische Gesteinsanalysen. Verhandl. der. K.K. Geol. Reichsanstalt, Wien., pp. 143-175. 1898.

8. Soil Survey Staff. Soil Survey Manual. Agricultural Handbook 18. USDA, 1951.

9. Thorp, J. and Smith, G. D. Higher categories of soil classification. Soil Sci. 67: 117-126. 1949.

10. United States Department of Agriculture. Soils and Men. U. S. Dept. Agr. Ybk., 1232, illus. 1938.

11. United States Department of Agriculture, Soil Conservation Service. Atlas of River Basins of the United States. USDA 79p. 1963.

APPENDIX

APPENDIX A

Official Soil Series Descriptions

The official descriptions for the Appling, Cecil and Lloyd series follow. The Davidson series also is described to show the close resemblance between Lloyd and Davidson soils. All colors are of moist soils.

Appling series[7]

The Appling series comprises well drained Red-Yellow Podzolic soils developed from granite gneisses, granites, and mica schists of the Piedmont Plateau. These soils are closely associated with the Cecil soils. Cecil soils are redder, and have more clay in the upper B horizon and have thinner, browner, and slightly finer textured A horizons than the Appling soils.

Soil Profile: Appling sandy loam

A_{00}, A_0 1 to 0 inches, forest litter underlain by partly decomposed residues.

A1 0 to 3 inches, grayish-brown (2.5Y 5/2) light sandy loam; weak to moderate fine and very fine granular structure; very friable; strongly acid; clear wavy boundary; 2 to 5 inches thick.

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[7]Taken from the revisions made December 12, 1958 by W. S. Ligon, Principal Soil Correlator, Southern States.

A2 3 to 12 inches, light yellowish-brown (2.5Y 6/4) sandy loam; moderate fine gramular structure; very friable; strongly acid; gradual smooth boundary; 6 to 12 inches thick.

B1 12 to 15 inches, yellowish-brown (10YR 5/6) sandy loam to light sandy clay loam; weak medium subangular blocky structure; friable; strongly acid; gradual smooth boundary; 2 to 5 inches thick.

B21 15 to 24 inches, strong brown (7.5YR 5/6) sandy clay loam; moderate fine and medium subangular blocky structure; thin and discontinuous clay films on about one-half of ped faces; friable; strongly acid; gradual smooth boundary; 5 to 13 inches thick.

B22 24 to 36 inches, brownish-yellow (10YR 6/6) and strong brown (7.5YR 5/6-8) sandy clay or clay with prominent red streaks; moderate to strong fine and medium subangular blocky structure; distinct continuous clay films on most ped faces; strongly acid; gradual smooth boundary; 9 to 15 inches thick.

B3 36 to 54 inches, mottled brownish-yellow (10YR 6/6), strong brown (7.5YR 5/6), and red (2.5YR 5/6) sandy clay or clay; moderate medium subangular blocky structure; thin discontinuous clay films mostly on vertical faces; firm; strongly acid; gradual wavy boundary;

12 to 24 inches thick.

C1 54 to 72 inches +, mottled yellowish-brown (10YR 5/6), reddish yellow (7.5YR 6/6) and red (2.5YR 5/6) clay loam; streaks of gray and yellow; friable; massive; a few clay films on vertical faces; strongly acid.

Range in Characteristics. The principal types in the series are sandy loam, fine sandy loam, coarse sandy loam, very fine sandy loam and where eroded, sandy clay loam. Color of the A1 ranges from gray to dark grayish brown, the A2 from pale yellow to yellowish brown, and the B horizon from yellowish brown to yellowish red. Color of the Ap horizon may range from light yellowish brown to grayish brown. Texture of the B2 horizon may range from heavy clay loam to clay. Thickness of the saprolite above the bedrock is generally 4 to 7 feet but may range from 2 to 20 feet. Where intrusions of basic dikes are present, base status may be significantly higher than elsewhere. Colors given are for the moist condition. When soil is dry, values are one or two units higher.

Topography. Gently sloping to rolling surfaces. Gradients are mostly between 3 and 10%, though they may be as steep as 25%.

Drainage and Permeability. Well drained with medium surface runoff and medium internal drainage. Permeability is moderate.

Vegetation. Originally forested with red, white and post oaks, hickory and some blackgum, soft maple and dogwood. Old abandoned fields commonly reseed to shortleaf, loblolly, and Virginia pine.

Distribution: Virginia, North and South Carolina, Georgia and Alabama.

Type Location. Alamance County, North Carolina, 200 yards south of Snow Hill Church and 55 yards west of Highway 119.

Series Established. Columbia County, Georgia, 1911.

Cecil series[8]

The Cecil series consists of well-drained Red-Yellow Podzolic soils derived from metamorphic and igneous rocks, chiefly in the southern and central parts of the Piedmont Plateau. The soils have been formed from weathered gneisses, gneissoid schists, mica schists, and occasional granites. They are associated with Appling, Lloyd, Louisburg, and Madison soils. The Cecil soils have redder B horizons than the Appling soils. Cecil soils lack the brown A horizons and are lighter colored in the B horizons than the Lloyd soils which have been formed from a mixture of acidic and basic rocks. They have deeper solums and much higher degree of horizon differentiation than do Louisburg soils, the associated Lithosols. They are less micaceous throughout the profile, especially in the upper C horizon, than are the Madison soils.

Soil Profile: Cecil sandy loam

A_{00}, A_0 1 to 0 inches, leaves and pine needles

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[8]Includes the revision of colors as stated in memorandum dated February 12, 1963, from W. S. Ligon, Principal Soil Correlator, Southern States.

A1 0 to 2 inches, dark grayish-brown (10YR 4/2) sandy loam with fine weak crumb structure; very friable; strongly acid; 1 to 4 inches thick.

A2 2 to 8 inches, brown (10YR 5/3) sandy loam, nearly loose or very friable; strongly acid; 4 to 10 inches thick.

B1 8 to 10 inches, yellowish-red (5YR 5/6) heavy sandy loam or light sandy clay loam with medium moderately granular structure; friable; strongly acid; 2 to 4 inches thick.

B2 10 to 38 inches, red (2.5YR 4/6) clay with medium, moderately blocky structure; strongly plastic when wet, very firm when moist, and very hard when dry; contains some white sand grains and small mica flakes; strongly acid; 20 to 36 inches thick.

B3 38 to 60 inches, red (2.5YR 4/6) clay loam with mottles or splotches of yellow; weak coarse blocky structure; firm to friable; contains enough small mica flakes to make it feel slick when rubbed between the fingers; strongly acid; 10 to 30 inches thick.

C 60 inches +, mottled or splotched light reddish-brown, yellowish brown, light gray, and black friable disintergrated rock material, containing much mica in most places; strongly acid; 20 to 60

inches thick.

Range of Characteristics. The A1 horizons range from very dark grayish brown (10YR 3/2) to brown (10YR 4/3). The A2 horizon ranges from grayish-brown (10YR 5/2) to light yellowish-brown (10YR 6/4). The B1 horizon ranges from strong brown (7.5YR 5/6) to red (2.5YR 4/6). The B2 horizon ranges from red (2.5YR 5/8) to red (10R 4/6) and the B3 horizon ranges from red (2.5YR 5/8) to red (10R 4/6).

Topography. Undulating to nearly level on broad inter-stream divides and rolling to hilly in more dissected areas. Slopes commonly range from 5 to 15% and may range from 2 to 30%.

Drainage. Well drained with moderate to rapid external and moderate internal drainage.

Vegetation. White, red, post, Spanish, and blackjack oaks and hickory with some dogwood, sourwood, blackgum, black locust, sweetgum, poplar, cedar, and shortleaf pine. Formerly cultivated and abandoned areas covered by shortleaf, loblolly, or Virginia pine.

Distribution. Virginia, North Carolina, South Carolina, Georgia, eastern Alabama, little in Arkansas.

Type Location. Forsythe County, North Carolina

Series Established: Cecil County, Maryland, 1899.

Lloyd series[9]

The Lloyd series consists of well-drained Red-Yellow Podzolic soils that intergrade toward the Reddish-Brown Lateritic group. They have formed in residuum from mixed acidic and basic rocks, such as granites, gneisses, or schists cut by dikes of diorite and similar dark-colored rock or from rocks that are intermediate in proportions of ferromagnesian minerals, such as quartz diorite. Lloyd soils are intermediate in many respects between the Cecil and Davidson soils. They have browner or redder A horizons and darker red B horizons than the Cecil soils and are derived from more basic rocks. On the other hand, they have less red and coarser-textured A horizons and are not as dark red in the B horizons as the Davidson soils and are derived from more acidic rocks.

Soil Profile. Lloyd loam

Ap 0 to 8 inches, reddish brown (5YR 4/4) loam; weak fine granular structure; friable; many fine and medium roots; medium acid; abrupt smooth boundary; 4 to 10 inches thick.

B1 8 to 17 inches, red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; many fine and medium roots; strongly acid; clear smooth boundary; 6 to 14 inches thick.

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[9]Taken from the revision made March 14, 1962 by G. H. Robinson, Senior Soil Correlator, and E. N. Miller, Assistant State Soil Scientist, South Carolina.

B2 17 to 38 inches, red (2.5YR 4/8) clay; moderate medium subangular blocky structure; firm, distinct clay films on faces of peds; medium acid; clear smooth boundary; 10 to 20 inches thick.

B3 38 to 44 inches, red (2.5YR 4/8) clay; moderate fine subangular blocky structure; firm; medium acid; clear wavy boundary; 3 to 15 inches thick.

C 44 inches +, mottled red (2.5YR 4/8) and reddish yellow (5YR 6/6) clay loam; massive; firm; common fragments of dark colored weathered rock; medium acid.

Range of Characteristics. Principal type is loam; less extensive types are sandy loam, fine sandy loam, and clay loam. In cultivated or pastured areas the Ap horizon ranges from brown through dark reddish brown. Wooded areas generally have a very dark gray or black A1 horizon, 1 to 3 inches thick. The color of the B horizon is centered on red but ranges to dark red (10R 3/6) especially in the lower part. Thickness of solum ranges from 34 to 54 inches and averages about 42 inches. Texture of the B horizons ranges from clay through clay loam. Some stone and gravel may occur on the surface. The B2, B3 and C horizons range to strongly acid. Areas developed from mixed acid and basic rocks may have some indications of an A2 horizon and paler colors over the acidic rock. Few fine mica flakes may be present in all horizons. Colors given above

are for moist soil; when soil is dry, values are one or two units higher.

Topography. Gently sloping to steep, with gradients mostly between 3 and 15%.

Drainage and Permeability. Well drained with moderate to rapid surface runoff and medium internal drainage. Permeability is moderate.

Vegetation. Typically deciduous forests with red, white, scarlet, post and chestnut oaks; hickory; dogwood; sourwood; and loblolly, shortleaf, and Virginia pine. Abandoned fields commonly have cover of sassafras or pure stands of pine.

Distribution. North Carolina, South Carolina, Georgia, Alabama, and Virginia.

Type Location. York County, South Carolina; 1½ miles northwest of Beersheba Church.

Series Established. Lloyd Shoals Reservoir Watershed Area, Newton County, Georgia, 1938.

Davidson series[10]

The Davidson series consists of well-drained Reddish-Brown Lateritic soils of the Piedmont Plateau. These soils are derived from the weathered products of dark-colored basic rocks, such as diorites, diabase, hornblende schists, and greenstone schists.

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[10] Includes the revision of colors, as stated in memorandum dated February 12, 1963, from W. S. Ligon, Principal Soil Correlator, Southern States.

Soil Profile. Davidson clay loam

A_{00}, A_0 1 to 0 inches, shallow covering of forest litter and leaf mold

A1 0 to 2 inches, very dusky red (10R 2/2) clay loam with coarse moderately granular structure; friable; slightly acid; 1 to 4 inches thick.

A3 2 to 8 inches, dark reddish-brown (2.5YR 2/4) clay loam with fine blocky to coarse granular structure; friable to firm; medium acid; 4 to 10 inches thick.

B2 8 to 48 inches, dark red (2.5YR 3/6) clay with medium to fine moderately blocky structure; sticky when wet; firm to very firm when moist, and hard when dry; medium to strongly acid; 30 to 70 inches thick.

B3 48 to 70 inches, dark red (2.5YR 3/6) clay with some moderate yellow mottles; coarse weak blocky structure; a few small black rounded accretions (containing manganese); smooth soap-like feel; medium to strongly acid; 15 to 50 inches thick.

C 70 inches +, disintegrated and partially decomposed basic rock material mixed with moderate yellow friable clay loam; some rock fragments are blocky, light in weight, and yellow on the outside; medium to strongly acid.

Range of Characteristics. Textures range from loam to clay. Layers 1 and 2 have become mixed in cultivated fields. The A3 horizon ranges from dark reddish-brown (5YR 3/4) to very dusky red (2.5YR 2/2). The B2 horizon ranges from dark red (2.5YR 3/6) to dusky red (10R 3/3) and the B3 horizon ranges from red (10R 4/8) to dusky red (10R 3/3).

Topography. Undulating to steep with slopes commonly falling between 4 and 16% but ranging from 2 to 40%.

Drainage. Well-drained with moderate to rapid surface drainage and moderate to slow internal drainage.

Vegetation. White, post, red, and Spanish oaks,hickory, yellow poplar, walnut, locust, elm, and some shortleaf and loblolly pine, sourwood, dogwood, sassafras, and red cedar. Areas once cultivated and abandoned have been occupied by shortleaf and loblolly pine and cedar.

Distribution. Virginia, North Carolina, South Carolina, Georgia, Alabama and Arkansas.

Type Location. Rowan County, North Carolina

Series Established. Davidson County, North Carolina, 1916.

APPENDIX B

Legend for Map Symbols of Mapping Units Crossed in Transects

Map Symbol	Correlated Name
401A1	Chewacla silt loam
407B2	Appling coarse sandy loam, 2 to 6% slopes, eroded
407C2	Appling coarse sandy loam, 6 to 10% slopes, eroded
408C3	Appling sandy clay loam, 6 to 10% slopes, severely eroded
410B2	Cecil coarse sandy loam, 2 to 6% slopes, eroded
410C2	Cecil coarse sandy loam, 6 to 10% slopes, eroded
410D2	Cecil coarse sandy loam, 10 to 15% slopes, eroded
410E2	Cecil coarse sandy loam, 15 to 25% slopes, eroded
411B3	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
411C3	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
411D3	Cecil sandy clay loam, 10 to 15% slopes, severely eroded
412B1	Colfax sandy loam, 2 to 6% slopes
416C3	Davidson clay, 6 to 10% slopes, severely eroded
416D3	Davidson clay, 10 to 15% slopes, severely eroded
422B2	Lloyd sandy loam, 2 to 6% slopes, eroded
422C2	Lloyd sandy loam, 6 to 10% slopes, eroded
422D2	Lloyd sandy loam, 10 to 15% slopes, eroded
422E2	Lloyd sandy loam, 15 to 25% slopes, eroded
423B3	Lloyd clay loam, 2 to 6% slopes, severely eroded
423C3	Lloyd clay loam, 6 to 10% slopes, severely eroded

Map Symbol	Correlated Name
423D3	Lloyd clay loam, 10 to 15% slopes, severely eroded
423D4	Lloyd-Gullied land complex, 10 to 15% slopes
423E3	Lloyd clay loam, 15 to 25% slopes, severely eroded
428D2	Louisburg loamy coarse sand, 10 to 15% slopes
428E2	Louisburg loamy coarse sand, 15 to 25% slopes, eroded
429E1	Louisburg stony loamy coarse sand, 10 to 25% slopes
438A1) 438B1)	Local alluvial land
448A1	Alluvial land
449A1	Alluvial land, moderately wet
450A1	Alluvial land, wet
457A1	Wehadkee silt loam
458B1	Worsham soils, 2 to 6% slopes

Names of Pedons Studied at 518 Stops Along 31 Transects, Crossing 16 Sample Blocks in Walton County[11]

Sample Block 1

Map Number - ATS-10P-48; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
422C2	1	Lloyd clay loam, 6 to 10% slopes, severely eroded
423B3	2	Same as mapped
423C3	3	Same as mapped
	4	Same as mapped
	5	Same as mapped
	6	Same as mapped
423D3	7	Davidson loam, 2 to 6% slopes, eroded
	8	Davidson loam, 2 to 6% slopes, eroded
	9	Same as mapped
	10	Same as mapped
	11	Lloyd clay loam, 2 to 6% slopes, severely eroded
	12	Same as mapped
	13	Same as mapped
	14	Same as mapped
422B2	15	Cecil coarse sandy loam, 2 to 6% slopes, eroded
	16	Same as mapped

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[11] Legend for map symbols is on pages 69 and 70.

Map Symbol	Stop	Pedon Name
422B2	17	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
450A1	Skip	
449A1	Skip	

Sample Block 1

Map Number - ATS-10P-48; Transect Number 2 -- Started at SW corner of block and proceeded diagonally to NE corner.

Map Symbol	Stop	Pedon Name
410B2	1	Same as mapped (Some gravel on surface)
422C2	2	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	3	Same as mapped
423C3	4	Same as mapped
	5	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	6	Same as mapped
	7	Same as mapped
423B3	8	Davidson loam, 2 to 6% slopes, eroded
	9	Davidson loam, 2 to 6% slopes, eroded
423D3	10	Same as mapped
	11	Same as mapped
450A1	Skip	
449A1	Skip	

Sample Block 2

Map Number - ATS-5P-42 and 6P-152; Transect Number 1 -- Started at SE corner of block and proceeded diagonally to NW corner.

Map Symbol	Stop	Pedon Name
423B3	1	Davidson clay loam, 2 to 6% slopes, severely eroded
	2	Davidson clay loam, 2 to 6% slopes, severely eroded
	3	Same as mapped
	4	Same as mapped
	5	Same as mapped
423C3	6	Same as mapped
	7	Same as mapped
	8	Colfax sandy loam, 2 to 6% slopes, eroded
410C2	9	Same as mapped
449A1	Skip	
423C3	10	Same as mapped
422E2	11	Same as mapped
449A1	Skip	
422E2	12	Same as mapped
422D2	13	Same as mapped
423C3	14	Davidson clay loam, 6 to 10% slopes, severely eroded
	15	Davidson clay loam, 6 to 10% slopes, severely eroded
	16	Davidson clay loam, 6 to 10% slopes, severely eroded

Sample Block 2

Map Number - ATS-5P-42 and 6P-152; Transect Number 2 -- Started at SW corner of block and proceeded diagonally to NE corner.

Map Symbol	Stop	Pedon Name
411D3	1	Same as mapped
449A1	Skip	
423C3	2	Same as mapped
	3	Cecil gravelly coarse sandy loam, 6 to 10% slopes, eroded
	4	Cecil gravelly coarse sandy loam, 6 to 10% slopes, eroded
423B3	5	Lloyd clay loam, 2 to 6% slopes, very severely eroded
	6	Same as mapped
422B2	7	Same as mapped
449A1	Skip	
423C3	8	Same as mapped
	9	Same as mapped
423D3	10	Same as mapped
423C3	11	Same as mapped
423B3	12	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	13	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
423C3	14	Same as mapped
	15	Lloyd sandy loam, 6 to 10% slopes, eroded
423D3	16	Same as mapped
422B2	17	Same as mapped

Map Symbol	Stop	Pedon Name
423C3	18	Same as mapped
423B3	19	Cecil sandy clay loam, 2 to 6% slopes, severely eroded

Sample Block 3

Map Number - ATS-5P-136; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
422D2	1	Davidson clay loam, 10 to 15% slopes, severely eroded
	2	Davidson clay loam, 10 to 15% slopes, severely eroded
423C3	3	Davidson clay loam, 6 to 10% slopes, severely eroded
	4	Davidson clay loam, 6 to 10% slopes, severely eroded
423B3	5	Davidson clay loam, 2 to 6% slopes, severely eroded
416D3	Skip	
416C3	Skip	
423E3	6	Davidson clay loam, 15 to 25% slopes, severely eroded
448A1	Skip	
449A1	Skip	
407C2	7	Same as mapped
	8	Same as mapped
423E3	9	Lloyd clay loam, 6 to 10% slopes, severely eroded
	10	Lloyd clay loam, 6 to 10% slopes, severely eroded
	11	Same as mapped
449A1	Skip	

Sample Block 3

Map Number - ATS-5P-136; Transect Number 2 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
449A1	Skip	
423C3	1	Same as mapped
	2	Lloyd clay loam, 6 to 10% slopes, very severely eroded
423B3	3	Davidson clay loam, 2 to 6% slopes, severely eroded
	4	Davidson clay loam, 2 to 6% slopes, severely eroded
423D3	5	Davidson clay loam, 10 to 15% slopes, severely eroded
422C2	6	Same as mapped
	7	Same as mapped
449A1	Skip	
407C2	8	Appling sandy clay loam, 2 to 6% slopes, severely eroded
	9	Same as mapped
423E3	10	Davidson clay loam, 15 to 25% slopes, severely eroded
	11	Davidson clay loam, 15 to 25% slopes, severely eroded
	12	Lloyd clay loam, 15 to 25% slopes, very severely eroded
422E2	13	Davidson clay loam, 15 to 25% slopes, severely eroded
	14	Davidson clay loam, 15 to 25% slopes, severely eroded
	15	Davidson clay loam, 15 to 25% slopes, severely eroded
449A1	Skip	
423E3	16	Same as mapped

Sample Block 4

Map Number - ATS-9P-58; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
407B2	1	Same as mapped
	2	Same as mapped
	3	Same as mapped
410B2	4	Same as mapped
411C3	5	Same as mapped
410B2	6	Appling coarse sandy loam, 2 to 6% slopes, eroded
	7	Appling coarse sandy loam, 2 to 6% slopes, eroded
412B1	Skip	
Water	Skip	
410B2	8	Appling coarse sandy loam, 2 to 6% slopes, eroded
	9	Same as mapped
	10	Appling coarse sandy loam, 2 to 6% slopes, eroded
	11	Same as mapped
	12	Same as mapped
	13	Same as mapped
	14	Same as mapped
408C3	15	Appling coarse sandy loam, 6 to 10% slopes, eroded
	16	Appling coarse sandy loam, 6 to 10% slopes, eroded
	17	Appling coarse sandy loam, 2 to 6% slopes, eroded
438B1	Skip	
408C3	18	Appling coarse sandy loam, 2 to 6% slopes, eroded

Sample Block 4

Map Number - ATS-9P-58; Transect Number 2 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
410C2	1	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	2	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
407B2	3	Same as mapped
	4	Same as mapped
	5	Same as mapped
410B2	6	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	7	Same as mapped
	8	Same as mapped
	9	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	10	Appling coarse sandy loam, 2 to 6% slopes, eroded
Water	Skip	
410B2	11	Appling coarse sandy loam, 2 to 6% slopes, eroded
	12	Same as mapped
407B2	13	Same as mapped
	14	Same as mapped
	15	Colfax sandy loam, 2 to 6% slopes
457A1	Skip	
Water	Skip	
428D2	Skip	
411C3	16	Same as mapped

Sample Block 5

Map Number - ATS-5P-58; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Number	Stop	Pedon Name
423C3	1	Same as mapped
	2	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
423D4	3	Lloyd clay loam, 10 to 15% slopes, very severely eroded
	4	Lloyd clay loam, 10 to 15% slopes, very severely eroded
423B3	5	Same as mapped
423D3	6	Same as mapped
423B3	7	Davidson clay loam, 2 to 6% slopes, severely eroded
	8	Davidson clay loam, 2 to 6% slopes, severely eroded
423C3	9	Lloyd stony clay loam, 6 to 10% slopes, severely eroded
423B3	10	Same as mapped
	11	Davidson clay loam, 2 to 6% slopes, severely eroded
423C3	12	Davidson loam, 6 to 10% slopes, eroded
448A1	Skip	
423C3	13	Same as mapped
	14	Lloyd clay loam, 10 to 15% slopes, severely eroded
	15	Lloyd clay loam, 10 to 15% slopes, severely eroded
423B3	16	Davidson loam, 2 to 6% slopes, eroded
	17	Davidson loam, 2 to 6% slopes, eroded
	18	Davidson loam, 2 to 6% slopes, eroded

Map Symbol	Stop	Pedon Name
422C2	19	Same as mapped
423C3	20	Same as mapped
423D3	21	Same as mapped
448A1	Skip	

Sample Block 5

Map Number - ATS-5P-58; Transect Number 2 -- Started at SW corner of block and proceeded diagonally to NE corner.

Map Symbol	Stop	Pedon Name
423B3	1	Davidson clay loam, 2 to 6% slopes, severely eroded
	2	Davidson clay loam, 2 to 6% slopes, severely eroded
423C3	3	Same as mapped
	4	Davidson clay loam, 6 to 10% slopes, severely eroded
	5	Davidson clay loam, 6 to 10% slopes, severely eroded
423B3	6	Same as mapped
	7	Same as mapped
423C3	8	Same as mapped
	9	Same as mapped
Water	Skip	
407B2	10	Same as mapped
423C3	11	Same as mapped
	12	Same as mapped
422B2	13	Same as mapped
410B2	14	Lloyd sandy loam, 2 to 6% slopes, eroded

Sample Block 6

Map Number - ATS-10P-44; Transect Number 1.--Started at NE corner of block and proceeded diagonally to SW corner

Map Symbol	Stop	Pedon Name
411C3	1	Same as mapped
410B2	2	Cecil gravelly coarse sandy loam, 2 to 6% slopes, eroded
	3	Cecil gravelly coarse sandy loam, 2 to 6% slopes, eroded
411B3	4	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	5	Cecil coarse sandy loam, 6 to 10% slopes, eroded
411C3	6	Same as mapped
	7	Same as mapped (Intergrading toward Appling)
449A1	Skip	
423D3	8	Same as mapped
449A1	Skip	
412B1	Skip	
407C2	9	Colfax sandy loam, 2 to 6% slopes
	10	Colfax sandy loam, 2 to 6% slopes
449A1	Skip	

Sample Block 6

Map Number - ATS-10P-44; Transect Number 2 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
411B3	1	Cecil gravelly sandy clay loam, 2 to 6% slopes, severely eroded
	2	Same as mapped (Some gravel on surface)
411C3	3	Same as mapped (Some gravel on surface)
	4	Same as mapped
411D3	5	Local alluvial land, well drained
	6	Cecil coarse sandy loam, 10 to 15% slopes, eroded
	7	Same as mapped
	8	Same as mapped
	9	Same as mapped
449A1	Skip	
423D3	10	Cecil sandy clay loam, 10 to 15% slopes, severely eroded
	11	Cecil sandy clay loam, 10 to 15% slopes, severely eroded
423C3	12	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	13	Same as mapped
	14	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	15	Cecil gravelly coarse sandy loam, 6 to 10% slopes, eroded
422C2	16	Same as mapped
422B2	17	Same as mapped
	18	Lloyd clay loam, 2 to 6% slopes, severely eroded

Map Symbol	Stop	Pedon Name
422C2	19	Lloyd clay loam, 6 to 10% slopes, severely eroded
	20	Lloyd stony loam, 6 to 10% slopes, eroded

Sample Block 7

Map Number - ATS-6P-42; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner

Map Symbol	Stop	Pedon Name
422C2	1	Lloyd clay loam, 2 to 6% slopes, severely eroded
423B3	2	Same as mapped
	3	Same as mapped
438B1	Skip	
423C3	4	Same as mapped (Some gravel on surface)
423B3	5	Same as mapped
	6	Same as mapped
	7	Same as mapped
423C3	8	Same as mapped
423D3	9	Same as mapped
449A1	Skip	
423D3	10	Lloyd sandy loam, 10 to 15% slopes, eroded
	11	Lloyd sandy loam, 10 to 15% slopes, eroded
423C3	12	Same as mapped
	13	Same as mapped
423B3	14	Same as mapped
	15	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	16	Same as mapped
	17	Same as mapped
	18	Lloyd sandy loam, 2 to 6% slopes, eroded

Map Symbol	Stop	Pedon Name
423C3	19	Same as mapped
	20	Same as mapped

Sample Block 7

Map Number - ATS-6P-42; Transect Number 2 -- Started at SW corner of block and proceeded diagonally to NE corner.

Map Symbol	Stop	Pedon Name
423C3	1	Same as mapped
	2	Same as mapped
438B1	Skip	
423B3	3	Same as mapped
	4	Davidson loam, 2 to 6% slopes, eroded
	5	Davidson loam, 2 to 6% slopes, eroded
	6	Same as mapped (High in content of mica)
	7	Same as mapped
423E3	8	Same as mapped
449A1	Skip	
423D3	9	Same as mapped
	10	Same as mapped
	11	Same as mapped
	12	Same as mapped
423C3	13	Same as mapped
	14	Lloyd sandy loam, 6 to 10% slopes, eroded
423D3	15	Lloyd sandy loam, 10 to 15% slopes, eroded
	16	Same as mapped
423C3	17	Same as mapped (On shallow side)
	18	Louisburg loamy coarse sand, 6 to 10% slopes
	19	Same as mapped (On shallow side)

Map Symbol	Stop	Pedon Name
423D3	20	Madison clay loam, 10 to 15% slopes, severely eroded
	21	Same as mapped
448A1	Skip	

Sample Block 8

Map Number - ATS-9P-132; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to county line.

Map Symbol	Stop	Pedon Name
410B2	1	Same as mapped
411B3	2	Lloyd sandy loam, 2 to 6% slopes, eroded
	3	Lloyd sandy loam, 2 to 6% slopes, eroded
	4	Lloyd clay loam, 2 to 6% slopes, severely eroded
	5	Lloyd clay loam, 2 to 6% slopes, severely eroded
411C3	6	Lloyd clay loam, 6 to 10% slopes, severely eroded
	7	Lloyd clay loam, 6 to 10% slopes, severely eroded
449A1	Skip	

Sample Block 9

Map Number - ATS-6P-60 and 6P-36; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
411B3	1	Same as mapped
	2	Same as mapped
	3	Cecil coarse sandy loam, 2 to 6% slopes, eroded
	4	Appling coarse sandy loam, 2 to 6% slopes, eroded
	5	Same as mapped (Intergrading toward Madison)
	6	Same as mapped
	7	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	8	Lloyd clay loam, 2 to 6% slopes, severely eroded
	9	Lloyd clay loam, 2 to 6% slopes, severely eroded
	10	Same as mapped
	11	Same as mapped
	12	Same as mapped
	13	Same as mapped
	14	Same as mapped
410B2	15	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	16	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	17	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	18	Same as mapped
438A1	Skip	
410B2	19	Same as mapped
	20	Same as mapped

Sample Block 9

Map Number ATS-6P-60 and 6P-36; Transect Number 2 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
411B3	1	Same as mapped (Intergrading toward Madison)
	2	Cecil coarse sandy loam, 2 to 6% slopes, eroded
	3	Same as mapped
410B2	4	Cecil gravelly coarse sandy loam, 2 to 6% slopes, eroded
	5	Same as mapped
411B3	6	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	7	Same as mapped
410B2	8	Same as mapped
	9	Same as mapped
	10	Same as mapped
411B3	11	Same as mapped
	12	Same as mapped
411C3	13	Same as mapped
	14	Same as mapped
	15	Colfax sandy loam, 2 to 6% slopes
	16	Colfax sandy loam, 2 to 6% slopes
458B1	Skip	
411C3	17	Appling sandy clay loam, 6 to 10% slopes, severely eroded
410B2	18	Appling coarse sandy loam, 2 to 6% slopes, eroded
	19	Appling coarse sandy loam, 2 to 6% slopes

Map Symbol	Stop		Pedon Name
410B2	20	Same as mapped	
	21	Same as mapped	
	22	Same as mapped	

Sample Block 11

Map Number - ATS-5P-64; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
411C3	1	Same as mapped
	2	Same as mapped
411B3	3	Same as mapped (On shallow side)
	4	Cecil sandy clay loam, 2 to 6% slopes, very severely eroded
	5	Same as mapped (Intergrading toward Louisburg)
	6	Same as mapped
411D3	7	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	8	Same as mapped
449A1	Skip	
411D3	9	Same as mapped
	10	Same as mapped
410D2	11	Louisburg stony coarse sandy loam, 10 to 15% slopes
411C3	12	Same as mapped
	13	Same as mapped
410B2	14	Same as mapped
410D2	15	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	16	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	17	Same as mapped
	18	Same as mapped
423C3	19	Cecil sandy clay loam, 6 to 10% slopes, severely eroded

Map Symbol	Stop	Pedon Name
410D2	20	Same as mapped
	21	Local alluvial land, well-drained
422B2	22	Cecil coarse sandy loam, 2 to 6% slopes, eroded
411D3	23	Same as mapped
	24	Same as mapped
422B2	25	Cecil sandy clay loam, 2 to 6% slopes, severely eroded

Sample Block 11

Map Number - ATS-5P-64; Transect Number 2 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
450A1	Skip	
449A1	Skip	
410D2	1	Same as mapped
	2	Same as mapped (Intergrading toward Louisburg)
	3	Louisburg stony coarse sandy loam, 10 to 15% slopes
411C3	4	Louisburg stony coarse sandy loam, 6 to 10% slopes
	5	Same as mapped
410B2	6	Same as mapped
	7	Same as mapped
411C3	8	Cecil gravelly coarse sandy loam, 6 to 10% slopes, eroded
	9	Louisburg stony coarse sandy loam, 6 to 10% slopes
	10	Same as mapped
410B2	11	Same as mapped
411C3	12	Same as mapped
	13	Same as mapped
	14	Same as mapped
	15	Same as mapped
	16	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	17	Same as mapped
411D3	18	Local alluvial land, well drained
	19	Same as mapped
411C3	20	Same as mapped

Sample Block 12

Map Number - ATS-4P-160; Transect Number 1 -- Started at SE corner of block and proceeded diagonally to NW corner.

Map Symbol	Stop	Pedon Name
407B2	1	Same as mapped
	2	Louisburg coarse sandy loam, 2 to 6% slopes
429E1	Skip	
449A1	Skip	
410D2	3	Same as mapped
410C2	4	Same as mapped
	5	Same as mapped
410B2	6	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	7	Same as mapped
410C2	8	Same as mapped
407B2	9	Same as mapped
	10	Same as mapped
	11	Appling coarse sandy loam, 2 to 6% slopes
	12	Same as mapped
407C2	13	Same as mapped
	14	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	15	Rock outcrop
	16	Same as mapped
	17	Same as mapped

Sample Block 12

Map Number - ATS-4P-160; Transect Number 2 -- Started at SW corner of block and proceeded diagonally to NE corner.

Map Symbol	Stop	Pedon Name
411D3	1	Same as mapped
411B3	2	Same as mapped
410C2	3	Same as mapped
	4	Appling coarse sandy loam, 6 to 10% slopes, eroded
410D2	5	Same as mapped
407C2	6	Same as mapped
449A1	Skip	
407C2	7	Same as mapped
410C2	8	Same as mapped
410B2	9	Same as mapped
	10	Same as mapped
410E2	11	Cecil coarse sandy loam, thin solum, 15 to 25% slopes, eroded
449A1	Skip	
428D2	Skip	
407C2	12	Louisburg coares sandy loam, 6 to 10% slopes

Sample Block 13

Map Number - ATS-5P-70; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
411C3	1	Same as mapped
	2	Same as mapped (On shallow side)
	3	Same as mapped (On shallow side)
	4	Cecil sandy clay loam, 6 to 10% slopes, very severely eroded
411C3	5	Same as mapped
	6	Same as mapped
	7	Same as mapped
	8	Same as mapped
	9	Same as mapped
411B3	10	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	11	Cecil coarse sandy loam, 2 to 6% slopes, eroded
	12	Same as mapped
401A1	Skip	
449A1	Skip	

Sample Block 13

Map Number - ATS-5P-70; Transect Number 2 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
401A1	Skip	
445B3	Skip	
411C3	1	Same as mapped
	2	Same as mapped
	3	Cecil sandy clay loam, 6 to 10% slopes, very severely eroded
	4	Cecil sandy clay loam, 6 to 10% slopes, very severely eroded
411B3	5	Same as mapped
	6	Same as mapped (On shallow side)
448A1	Skip	

Sample Block 14

Map Number - ATS-6P-66 and AUC-6P-30; Transect Number 1 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
411C3	1	Same as mapped
	2	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	3	Same as mapped
411B3	4	Same as mapped
	5	Same as mapped
411C3	6	Same as mapped
	7	Same as mapped
	8	Same as mapped
	9	Same as mapped
	10	Cecil coarse sandy loam, 10 to 15% slopes, eroded
410B2	11	Cecil gravelly coarse sandy loam, 2 to 6% slopes, eroded
	12	Cecil gravelly coarse sandy loam, 2 to 6% slopes, eroded
411C3	13	Cecil gravelly coarse sandy loam, 6 to 10% slopes, eroded
	14	Same as mapped
	15	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
410B2	16	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	17	Same as mapped
	18	Same as mapped

Map Symbol	Stop	Pedon Name
410B2	19	Lloyd sandy loam, 2 to 6% slopes, eroded
	20	Lloyd sandy loam, 2 to 6% slopes, eroded
	21	Lloyd sandy loam, 2 to 6% slopes, eroded

Sample Block 14

Map Number - ATS-6P-66 and AUC-6P-30; Transect Number 2 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
411D3	1	Same as mapped
411C3	2	Same as mapped
	3	Same as mapped
	4	Same as mapped
410B2	5	Same as mapped
	6	Same as mapped
411C3	7	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	8	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	9	Cecil coarse sandy loam, 10 to 15% slopes, eroded
	10	Same as mapped
	11	Same as mapped
	12	Same as mapped
	13	Same as mapped
	14	Same as mapped
	15	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	16	Same as mapped
411B3	17	Same as mapped
	18	Same as mapped
411C3	19	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	20	Same as mapped
	21	Same as mapped
423E3	22	Same as mapped

Sample Block 15

Map Number - ATS-5P-72; Transect Number 1 -- Started at SW corner of block and proceeded diagonally to NE corner.

Map Symbol	Stop	Pedon Name
411B3	1	Same as mapped
	2	Same as mapped
	3	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
	4	Same as mapped
	5	Same as mapped (On shallow side)
	6	Same as mapped (On shallow side)
	7	Same as mapped (On shallow side)
	8	Same as mapped (Intergrading to Louisburg)
	9	Same as mapped
411C3	10	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	11	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	12	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	13	Same as mapped
Water	Skip	
411B3	14	Same as mapped (On shallow side)
	15	Same as mapped (On shallow side)
	16	Same as mapped (On shallow side)
	17	Same as mapped (On shallow side)

Sample Block 15

Map Number = ATS-5P-72; Transect Number 2 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
411C3	1	Same as mapped (On shallow side)
411B3	2	Cecil sandy clay loam, 2 to 6% slopes, very severely eroded
	3	Same as mapped (On shallow side)
	4	Cecil sandy clay loam, 2 to 6% slopes, very severely eroded
	5	Same as mapped
	6	Same as mapped
411C3	7	Same as mapped (On shallow side)
	8	Same as mapped (On shallow side)
411B3	9	Cecil sandy clay loam, 2 to 6% slopes, very severely eroded
	10	Same as mapped (Intergrading toward Louisburg)
411C3	11	Cecil sandy clay loam, 6 to 10% slopes, very severely eroded
	12	Same as mapped (On shallow side)
	13	Same as mapped
411B3	14	Same as mapped
410C2	15	Local alluvial land, well drained
	16	Same as mapped
	17	Same as mapped
	18	Same as mapped
	19	Lloyd sandy loam, 6 to 10% slopes, eroded

Map Symbol	Stop		Pedon Name
411C3	20	Same as mapped	
	21	Same as mapped	

Sample Block 16

Map Number - ATS-5P-22; Transect Number 1 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
428E2	Skip	
448A1	Skip	
411D3	1	Madison sandy clay loam, 10 to 15% slopes, very severely eroded
	2	Same as mapped (Intergrading toward Madison)
	3	Same as mapped (Intergrading toward Madison)
	4	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
411B3	5	Same as mapped
	6	Same as mapped
	7	Same as mapped
438B1	Skip	
411B3	8	Appling coarse sandy loam, 2 to 6% slopes, eroded
	9	Appling coarse sandy loam, 2 to 6% slopes, eroded
411C3	10	Appling sandy clay loam, 6 to 10% slopes, severely eroded
407B2	11	Same as mapped
448A1	Skip	
411D3	12	Same as mapped
	13	Cecil sandy clay loam, 15 to 25% slopes, severely eroded
	14	Same as mapped
	15	Same as mapped

Map Symbol	Stop	Pedon Name
411B3	16	Same as mapped
	17	Same as mapped
	18	Same as mapped

Sample Block 16

Map Number - ATS-5P-22; Transect Number 2 -- Started at NE corner of block and proceeded diagonally to county line.

Map Symbol	Stop	Pedon Name
411C3	1	Same as mapped
411B3	2	Same as mapped (Some gravel on surface)
	3	Same as mapped (Some gravel on surface)
	4	Cecil gravelly sandy clay loam, 2 to 6% slopes, severely eroded
411C3	5	Cecil gravelly sandy clay loam, 6 to 10% slopes, severely eroded
	6	Same as mapped
	7	Same as mapped
	8	Appling sandy clay loam, 6 to 10% slopes, severely eroded
411B3	9	Appling sandy clay loam, 2 to 6% slopes, severely eroded
	10	Appling sandy clay loam, 2 to 6% slopes, severely eroded
438E1	Skip	
411B3	11	Appling sandy clay loam, 2 to 6% slopes, s everely eroded
410E2	12	Same as mapped
	13	Same as mapped

Sample Block 17

Map Number - ATS-6P-174 and AUC-10P-28; Transect Number 1 -- Started at NE corner of block and proceeded diagonally to SW corner.

Map Symbol	Stop	Pedon Name
422B2	1	Same as mapped (Intergrading toward Davidson)
	2	Same as mapped (Intergrading toward Davidson)
411B3	3	Lloyd clay loam, 2 to 6% slopes, severely eroded
410B2	4	Lloyd sandy loam, 2 to 6% slopes, eroded
	5	Lloyd sandy loam, 2 to 6% slopes, eroded
411C3	6	Lloyd clay loam, 6 to 10% slopes, severely eroded
	7	Lloyd clay loam, 6 to 10% slopes, severely eroded
410C2	8	Lloyd sandy loam, 6 to 10% slopes, eroded
	9	Lloyd sandy loam, 6 to 10% slopes, eroded
	10	Same as mapped
	11	Cecil sandy clay loam, 10 to 15% slopes, severely eroded
	12	Same as mapped
449A1	Skip	
410E2	13	Lloyd clay loam, 10 to 15% slopes, severely eroded
423C3	14	Same as mapped
	15	Same as mapped
	16	Same as mapped
	17	Same as mapped
411C3	18	Lloyd clay loam, 6 to 10% slopes, severely eroded
	19	Lloyd clay loam, 6 to 10% slopes, severely eroded
423C3	20	Same as mapped

Sample Block 17

Map Number - ATS-6P-174 and AUC-10P-28; Transect Number 2 -- Started at NW corner of block and proceeded diagonally to SE corner.

Map Symbol	Stop	Pedon Name
410C2	1	Lloyd sandy loam, 6 to 10% slopes, eroded
	2	Lloyd clay loam, 2 to 6% slopes, severely eroded
	3	Lloyd clay loam, 2 to 6% slopes, severely eroded
	4	Lloyd sandy loam, 6 to 10% slopes, eroded
410B2	5	Lloyd sandy loam, 2 to 6% slopes, eroded
	6	Lloyd sandy loam, 2 to 6% slopes, eroded
410C2	7	Lloyd sandy loam, 2 to 6% slopes, eroded
407C2	8	Cecil coarse sandy loam, 6 to 10% slopes, eroded
	9	Cecil coarse sandy loam, 6 to 10% slopes, eroded
448A1	Skip	
410C2	10	Cecil coarse sandy loam, 10 to 15% slopes, eroded
	11	Cecil sandy clay loam, 6 to 10% slopes, severely eroded
410B2	12	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	13	Same as mapped
	14	Cecil sandy clay loam, 2 to 6% slopes, severely eroded
	15	Cecil sandy clay loam, 2 to 6% slopes, severely eroded