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CORPS OF ENGINEERS, U. S. ARMY

FORECASTING TRAFFICABILITY OF SOILS

REPORT NO. 4

INFORMATION FOR PREDICTING MOISTURE IN THE SURFACE FOOT OF VARIOUS SOILS

TECHNICAL MEMORANDUM NO. 3-331

A
RESEARCH AND DEVELOPMENT REPORT OF THE
CORPS OF ENGINEERS

PREPARED BY

FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE

AND

U. S. ARMY ENGINEER WATERWAYS EXPERIMENT STATION
VICKSBURG, MISSISSIPPI

ARMY MRC VICKSBURG MISS

FEBRUARY 1957

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PREFACE

The work reported herein is concerned with the development and application of methods for predicting the moisture content of soils, and is a part of Corps of Engineers subproject 8-70-05-101, "Trafficability of Soils as Related to the Mobility of Military Vehicles," under Project 8-70-05-100, "Mobility of the Army." The subproject is divided into two phases: phase I, the development of methods and instruments for determination of trafficability by ground reconnaissance parties, and phase II, the development of methods for estimating the trafficability of soil without complete physical contact with the soil.

Phase I studies in fine-grained soils are essentially complete. Instruments and techniques have been developed that permit the measurement of the trafficability of any fine-grained soil in units (rating cone index) that will permit immediate and confident prediction of the performance of any military vehicle in that soil. Studies are now in progress to develop instruments and techniques for measuring the trafficability of coarse-grained soils and snow. Phase I studies are described in a series of reports, TM 3-240, "Trafficability of Soils." The 15 reports in this series are listed on the inside of the back cover of this volume.

Phase II studies consist of two parts: a study to determine means of using aerial photographs for estimating trafficability, and a detailed study of the effects of weather on the trafficability of soils. The two parts, now being studied independently, are meant to complement each other in the application stage. The airphoto study is being conducted by Purdue University under contract to the Waterways Experiment Station. The soil-weather study has been in progress at the Waterways Experiment Station since 1948. Since 1951 the bulk of the study has been conducted by the Vicksburg Infiltration Project, Forest Service research center of the Southern Forest Experiment Station, U. S. Department of Agriculture. This report, the fourth in the series designated TM 3-331, "Forecasting Trafficability of Soils," was prepared by the Vicksburg Infiltration Project in cooperation with the Army Mobility Research Center, Waterways

Experiment Station. The other reports of this series are listed on the inside of the front cover of this volume.

Acknowledgments

The Forest Service project was possible only through the excellent cooperation of many public agencies and interested individuals.

The Intermountain and the Rocky Mountain Forest and Range Experiment Stations and the Lake States Forest Experiment Station, all of the Forest Service, U. S. Department of Agriculture, cooperated with project field parties in many ways. The Agricultural Research Service at Miles City, Montana, assisted in installation and maintenance of the soil-moisture study there.

Assistance of the following agencies in supplying data included in this report is acknowledged: Northeastern Forest Experiment Station, Southeastern Forest and Range Experiment Station, and California Forest and Range Experiment Station, all of the U. S. Forest Service, and the Soil Conservation Service Project at State College, Mississippi.

The East Texas, East Gulfcoast, Alexandria, Crossett and Tallahatchie Research Centers of the Southern Forest Experiment Station, the Penobscot Center of the Northeastern Station, and the University of Missouri and University of Illinois participated in the cooperative work of this project as it concerns their respective studies.

Technical advice was obtained from M. D. Hoover, H. W. Lull, and E. A. Colman, U. S. Forest Service consultants. In addition, results of the project work were reviewed at meetings of consultants and representatives of the Waterways Experiment Station and the Forest Service in December 1954 and August 1956.

Waterways Experiment Station personnel who have been directly engaged in the project during this period are: Messrs. C. W. Randall, R. L. Shirley, E. S. Rush, R. E. Martin, W. C. Brown, Miss M. E. Smith, and Mrs. E. W. Balthis. Other personnel of the Army Mobility Research Center have assisted in a great many ways, especially in the planning of the project, the selection of the sites, and review of this report.

All Forest Service personnel at the Waterways Experiment Station have taken part in the assembling of this report and the results represent the collective work of the entire group. The following personnel were responsible for writing the descriptive matter: Messrs. W. M. Broadfoot, C. A. Carlson (since transferred to the Corps of Engineers), B. D. Doss, B. O. Jones, J. S. Horton, R. E. Taylor, and J. L. Thames of the Forest Service, and E. S. Rush of the Waterways Experiment Station.

Personnel

The cooperative Corps of Engineers-Forest Service project was initiated under the direct leadership of E. J. Dortignac and continued under his direction until December 1951, when H. W. Lull assumed charge. Lull was replaced by J. S. Horton in July 1954. Forest Service personnel who have participated in the work of the project subsequent to the assembling of Report 3 in May 1953 are:

Name	From	To	Name	From	To
Reinhart, K. G.	March 51	Aug 55	Helmers, A. E.	May 52	Jan 55
Doss, B. D.	March 51	July 56	Lee, J. E.	June 52	Present
Holland, J. C.	March 51	Nov 53	Matthews, G.	Aug 52	May 53
	Feb 54	Dec 54		June 55	Sept 55
Horton, J. S.	March 51	June 51	Hutcheson, S. A.	Oct 52	Oct 53
	July 54	Nov 56	Larson, D. E.	Jan 53	Jan 55
Carlson, C. A.	Apr 51	March 56	Ellison, D. A.	Jan 53	July 56
Thames, J. L.	Apr 51	Aug 56	Pierce, R. S.	Feb 53	Dec 54
Lull, H. W.	July 51	July 54	DeVore, M. C.	March 53	Aug 54
Moyle, R. C.	Feb 52	Apr 55	Boyd, R. J.	Apr 53	Feb 55
Taylor, R. E.	Feb 52	June 56	Swensen, E. I.	May 53	Present
Tobiaski, R. A.	Apr 52	Present	Hammack, D. D.	June 53	Apr 54
Herring, G. B.	Apr 52	Aug 55	Bavels, E.	July 53	Aug 53
Broadfoot, W. M.	May 52	Sept 55	Turcotte, V. S.	Oct 53	Present
Jones, B. O.	May 52	Sept 52	Noland, F.	Nov 53	June 54
	June 53	Jan 56	Southern, H. C.	Sept 54	Feb 56
			Gargaro, A.	Oct 54	Present

CONTENTS

CONTENTS (Continued)

SUMMARY

A study was initiated in early 1951 by the Forest Service, U. S. Department of Agriculture, at the request of the Corps of Engineers, U. S. Army, to develop methods of predicting soil-moisture content for use in forecasting trafficability of soils. Daily soil-moisture records and concurrent data and information on factors influencing soil moisture were collected from three prediction sites near Vicksburg, Mississippi. From these data, a soil-moisture prediction method was developed. Soil-moisture accretion from rains was found to be dependent on storm size and available storage. Soil-moisture loss was determined for the various seasons. This depletion was best expressed by a series of curves. The summer curve was very different from the winter curve, and the spring and autumn curves were similar enough to each other to permit use of a single curve for these seasons. By means of these accretion and depletion relations, soil moisture was predicted for these sites and consistently agreed with actual soil moisture.

Prediction relations were then derived from data collected from 30 sites representing a wide variety of American soils. This work, summarized in Report 3, showed that the method was applicable to many soil types and that further work should be carried on to derive additional relations from a still wider series of sites and soils. A total of 131 sites have now been studied in cooperation with various branches of the U. S. Forest Service, Soil Conservation Service, and several universities. These sites were located in 17 states and Alaska.

In the subhumid and arid sites of the west, artificial wetting of the soil with an infiltrometer was used in an attempt to obtain more depletion data. Rate of moisture loss from artificially wet soils was found to be significantly different from the rate from naturally wet soils. Therefore, only the rates determined from soils naturally wet by precipitation were used for analysis.

The accuracy of the soil-moisture prediction was tested for every site for which relations were made by comparing predicted moisture contents to the actual soil-moisture record. In the first part of the comparison, predictions were made only for the period of record from which the relations were derived. Sixty-six sites had deviations computed for every day and showed an average deviation of 0.08 in. of moisture for the 0- to 6-in. layer and 0.06 in. for the 6- to 12-in. layer. Forty-seven sites with comparisons computed only for the day before and the day after a storm averaged 0.13 in. and 0.10 in. for the two layers.

As the second method of comparisons, prediction relations developed from one year's record were used in predicting soil-moisture content for the subsequent year. In most cases, deviations of predicted from actual for the subsequent year averaged about the same as deviations computed for the first year of record.

x

The site characteristics, soil properties, climate, and all information needed for prediction of soil moisture at the 131 sites are summarized in the appendices to this report.

The report also outlines the present status of the project and discusses recommendations for future studies.

FORECASTING TRAFFICABILITY OF SOILS

INFORMATION FOR PREDICTING MOISTURE IN THE SURFACE FOOT OF VARIOUS SOILS

PART I: INTRODUCTION, BACKGROUND, AND PURPOSE OF THIS REPORT

Introduction

1. The strength and trafficability of soils vary with moisture content and with the nature, arrangement, and size distribution of the inorganic and organic soil particles. For a given soil, changes in trafficability are caused primarily by changes in soil moisture content. Hence, if water content of a soil could be predicted, its trafficability could be forecast from known or estimated relationships between soil moisture and strength. The development of methods for predicting the water content of soils has been the principal goal of the Vicksburg Infiltration Project thus far. Strength measurements have also been made in conjunction with soil moisture measurements whenever feasible. Some studies have been made of the relationship between soil moisture and strength. This report contains only a summary of strength data measured in connection with the moisture-prediction studies covered. Results of the soil moisture-strength studies will be reported in subsequent reports of this series.

2. In remote areas for which complete information about the climate, soil, and site is not available, accuracy of a trafficability forecast will diminish as more of the elements used in this forecast are estimated or predicted rather than measured. It is the goal of this project to improve the methods of estimating or predicting these elements until a reasonably accurate forecast of the trafficability of a remote area can be made without measurements. These elements include the soil properties and characteristics, moisture-prediction relations, moisture-strength relations, water table influences, and weather forecasts. Soil texture as well as other physical factors varies somewhat in a given soil

area. Other factors more difficult to measure also influence trafficability. Among these are soil structure and compactness which can change across fence lines because of differences in agricultural practices and in the soil's deposition, development, and erosion, and as a result of the presence of roots, root channels, rocks, and foreign matter.

3. Because of the inherent variability in these factors, the trafficability forecast, even with an accurate prediction of moisture content, will not define the trafficability of an area with the precision that can be obtained by a ground reconnaissance party using the instruments and techniques developed in the trafficability studies. Rather, one should expect to obtain a probable range of trafficability in a given area for a given moisture content. This kind of information, although admittedly inadequate for tactical plans, is nevertheless quite suitable for strategic planning. With this type of information, it is expected that military commanders will be able to know the best and worst months of trafficability in any given area, to select the types of vehicles less likely to be immobilized at a given time in a given area, to know how soon in terms of days after a rain the soil will be strong enough to support various vehicles, to know whether an overland attack by the enemy is feasible or can be accomplished only with great difficulty, etc. The degree of confidence to be placed in any of these types of strategic estimates will, it is hoped, be developed in future studies under phase II of the trafficability project.

Background

4. Studies conducted by the Waterways Experiment Station and reported in the series of reports entitled Trafficability of Soils showed that the strength of soil in the 6- to 12-in. layer below the surface is of major importance to its trafficability. As soil strength varies primarily with soil-moisture content, studies were started to develop means of predicting soil moisture. A satisfactory method of soil-moisture prediction for trafficability purposes should: (a) apply specifically to the 6- to 12-in. soil depth; (b) be simple enough to permit its use by

nontechnical personnel; and (c) be derived from data that are readily available or obtainable in the field.

5. When the Forest Service started the project at Vicksburg, it was recognized that detailed data on soil moisture, rainfall, and other pertinent factors must be assembled and studied before a satisfactory prediction method could be developed. It was known that soil-moisture content and, accordingly, its prediction are influenced by a large number of environmental factors. Classified broadly, these factors may be divided into climate, soils, vegetation, and topography. Few, if any, have a direct effect on soil moisture independent of any other factor. For example, most climatic factors such as air temperature, relative humidity, and rainfall, are correlated with each other in various degrees. Soil-moisture content at any one time, therefore, reflects the integrated effect of the site factors. Conversely, soil-moisture content prediction requires information on more than one factor and is accomplished most simply by using these factors which in themselves integrate several elements of the environment.

6. The complexity of the problem of relating soil-moisture changes to environmental conditions indicated that the proper approach was to collect daily soil-moisture records and concurrent data on the factors considered to be the most influential in governing soil-moisture content. The climatic factors to be included were precipitation, air temperature, relative humidity, and wind movement. Soil properties to be determined were: texture, bulk density, tension relations, plasticity constants, organic matter content, and specific gravity. Composition, density, and development of vegetation and ground-water levels were also to be recorded.

7. Collection of detailed field and laboratory data on several sites in the vicinity of Vicksburg was begun in April 1951, and a method for predicting soil moisture was developed on the basis of these data. In 1952, the decision was reached to test this prediction method in other regions; in all, data from 59 sites located in Mississippi, Pennsylvania, California, South Carolina, South Dakota, Nebraska, and Indiana were obtained and analyzed.

8. The method developed for prediction of soil moisture at the Vicksburg sites was tested as these data accumulated and was found applicable in all cases. However, the accretion (wetting) and depletion (drying) relations varied between sites. In 1953 it was decided to prepare a report on the development of the soil-moisture prediction method and to include the accretion and depletion relations already derived. This report was issued in October 1954 as Waterways Experiment Station TM 3-331, Report 3. It covered the two-year period from April 1951 to April 1953 and superseded the previous two reports in the series. Report 3 marked the conclusion of the pilot phase of this work. The experimental procedures and the prediction method developed during the course of that work were considered ready for application in a wider scope of climates and soils.

9. Since that time, many additional sites, totaling 131 located in 17 states and Alaska (fig. 1), have been studied (appendix A). In addition, data are being collected in Puerto Rico to derive prediction relations for application to tropical soils; these data will be discussed in a supplementary report.

Purpose and Scope

10. The purpose of this report is threefold:

a. To present in concise form the information about the soils and sites used in development of the prediction method and in the derivation of additional prediction relations. Soil-strength data are also included, even though they are not used in prediction of soil moisture (appendices B to E).

b. To summarize the relations derived from all sites with detailed records, including both the relations included in Report 3 and the relations derived for sites studied since issuance of that report (appendices F to H).

c. To discuss the accuracy of soil-moisture prediction at the various sites using the relations derived from their soil-moisture records (appendix I). This report also includes a short discussion of the method used to predict soil-moisture content in the 0- to 6-in. and the 6- to 12-in. layer and its success in application, and outlines plans and recommendations for future studies.

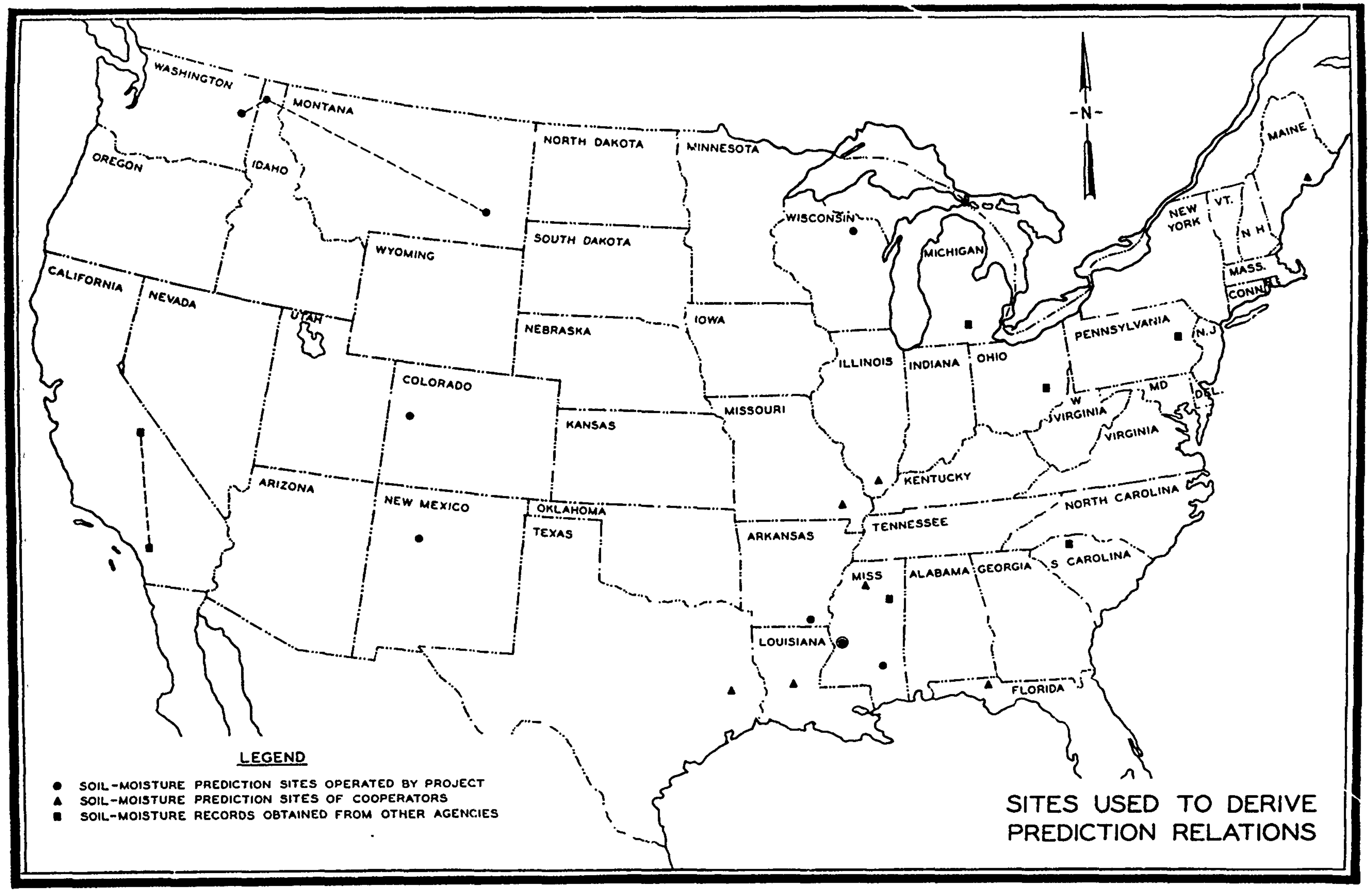

Fig. 1. Locations of the sites used for derivation of soil-moisture prediction relations

11. The data on soils and environment and the derived prediction relations collected from the 131 sites are now being used in a comprehensive correlation study to develop standardized accretion and depletic relations applicable over a wide range of climates and soils. This report, however, does not discuss any of the attempts to correlate these prediction relations to soils and site factors. Neither does it present any of the attempts to use these relations to predict soil moisture in sites with similar soils and climates where detailed records of soil moisture are not available. An additional report will be prepared to cover this final phase of the soil-moisture prediction project.

Definitions

12. The following list of definitions includes the specialized terms used in the trafficability investigations. Texts and glossaries in soil physics and soil mechanics were followed; however, modifications were made and new terms introduced as needed. The list is divided into three parts: general terms used in various fields of specialization, soil-moisture prediction terms used in the way that they are presented in this report, and trafficability terms. Terms used primarily in engineering are followed by (E), those used in soil science and other biological sciences by (S).

General terms

Bulk density (S). Weight of soil after drying to a constant weight at 105 C per unit volume of the soil in its natural structure, expressed as grams per cubic centimeter. It is comparable to the dry unit weight (E) of intact samples, and is numerically equal to the bulk specific gravity (E).

Coarse-grained soil (E). A soil of which more than 50 per cent of the grains, by weight, will be retained on a No. 200 sieve (0.074 mm in diameter).

Evapotranspiration (S). The process of water removal from soil by vegetation and evaporation.

Field capacity (field-moisture capacity) (S). Amount of water remaining in a well-drained soil when the velocity of downward flow into unsaturated soil has become small. It is expressed as a percentage of weight of oven-dried soil. The 0.06 atm (60 cm water) soil-moisture tension value approximates the field capacity.

Fine-grained soil (E). A soil of which more than 50 per cent of the grains, by weight, will pass a No. 200 sieve (0.074 mm in diameter).

Infiltrometer (S). A device for measuring the rate of entry of a fluid into a porous body (e.g., water into soil).

Liquid limit (E). The moisture content at which the soil barely flows under an applied force of 25 blows with a standard instrument and procedure. It represents the moisture content at which the characteristics of a mixture of soil and water change from plastic to liquid.

Loam (S). A textural class having less than 52 per cent sand, between 28 per cent and 50 per cent silt, and between 7 per cent and 27 per cent clay particles.

Lysimeter (S). A tank installed in the field with prepared or natural soil for use in controlled experiments of soil conditions and plant growth.

Moisture tension (S). The equivalent negative gage pressure, or suction, in the soil moisture. Soil-moisture tension is equal to the equivalent negative or gage pressure to which water must be subjected in order to be in hydraulic equilibrium, through a porous permeable wall or membrane, with the water in the soil.

Phenology (S). The study of observed and recorded dates of seasonal phenomena of plants and animals as related to the climate and the weather.

Plastic limit (E). The moisture content at which the soil barely adheres together when rolled out into 1/8-in.-diameter threads. It represents the moisture content at which a mixture of soil and water begins to take on plastic properties at which it can be puddled.

Plasticity index (E). The numerical difference in moisture content between the liquid and plastic limits.

Remolding (E). The process of kneading or working the soil, resulting in a change of strength.

Saturate (S). To fill all voids between soil particles with liquid.

Shear resistance (E). The maximum resistance of a soil to shearing stress, which is the component of any stress that acts tangentially to a given plane.

Soil-moisture content (S). The amount of water in the soil expressed on the dry weight or volume basis.

Soil-moisture per cent by weight (S). The soil-moisture content expressed as a percentage of the weight of water driven off at 105 C to the weight of the remaining dry soil.

Soil-moisture per cent by volume (S). The soil-moisture content expressed as a percentage of the volume of water driven off at 105 C to the volume of the soil in its natural structure.

Soil-moisture per cent conversion (S). The relation that moisture per cent by volume is equal to the moisture per cent by weight multiplied by bulk density and divided by the unit weight of water.

Soil-moisture content in inches (S). A volume expression of moisture content by depth with no areal boundaries. It is numerically equal to the volume per cent divided by one hundred, with units of water depth per unit of soil depth (e.g., inches per inch). The usual expression in this report is inches of water per 6 in. of soil depth. These moisture contents are computed as follows:

$$\text{Moisture content, inches per 6 in.} = \frac{\text{moisture content, \% by weight} \times \text{bulk density} \times 6}{\text{unit weight of water} \times 100} .$$

With bulk density expressed as the dry unit weight of intact samples, in pounds per cubic foot, computation is as follows:

$$\text{Moisture content, inches per 6 in.} = \frac{\text{moisture content, \% by weight} \times \text{dry unit weight} \times 6}{\text{unit weight of water} \times 100}$$

Soil separate (S). Mineral particles, less than 2 mm in equivalent diameter ranging between specified size limits. The names and sizes of separates recognized in the United States are: sand (2.0-0.05 mm), silt (0.05-0.002 mm), and clay (<0.002 mm).

Soil texture (S). The relative proportions of the various soil separates in a soil material.

Specific gravity (S). The ratio of the weight of a given volume of solid particles without voids to the weight of an equal volume of water. It is numerically equal to the weight of the solid particles in grams per cubic centimeter. In this report, the solid particles include the organic particles that pass through a 2-mm sieve.

Total pore space (theoretical maximum moisture content) (S). The amount of voids in a unit volume of soil in its natural structure and dried to a constant weight at 105 C. The total pore space, per cent by volume, can be computed from the following relation:

$$\text{Total pore space, per cent by volume} = \left(1 - \frac{\text{bulk density}}{\text{specific gravity x unit weight of water}}\right) 100$$

Water table (S). The upper surface of ground water; locus of points in soil water at which the hydraulic pressure is equal to atmosphere pressure.

Water table, perched (S). The upper surface of a body of free ground water in a zone of saturation separated, by unsaturated material, from an underlying body of ground water in a different zone of saturation.

Wilting point (S). The soil-moisture content at which soil cannot supply water at a sufficient rate to maintain turgor in the plant tissues, and the plant permanently wilts. The 15-atm soil-moisture tension value approximates the wilting point.

Soil-moisture prediction terms

Accretion (S). The amount of moisture gain within a soil layer during a period of time. The moisture gain is caused primarily by precipitation. Lateral flow and a rise in water table may directly attribute to accretion at some sites, however these sources are usually related to precipitation.

Accretion class (S). The division of accretion into two classes, I and II, depending on whether rainfall is more or less than the available storage in the surface-to-one-foot-depth soil layer.

Accretion regression (S). A linear regression computed for each soil layer and accretion class in which accretion is related to rainfall or available storage depending on the class.

Available storage (S). The amount of voids, or pore space, occupied by air within a soil layer preceding precipitation. It is the difference between the field-maximum-moisture content and the moisture content at any given time.

Depletion (S). The amount of moisture loss from a soil layer during a period of time. The moisture loss is caused by evapotranspiration and drainage.

Depletion curve (S). The relation of soil-moisture content plotted against time in days depicting the average rate of moisture loss during inter-rain periods. Curves are determined for a given site by soil layers and seasons.

Field-maximum-moisture content (S). The highest recurring average moisture content measured during the period of record.

Field-minimum-moisture content (S). The lowest value of each depletion curve, representing an average of the lowest moisture levels that occurred.

Minimum storm size (S). The smallest storm which, on the average, caused a positive accretion.

Soil-moisture prediction (S). A deduction of soil-moisture content from day to day using certain known facts or relations, including accretion and depletion relations, and estimates of the field-maximum-and minimum-moisture contents, minimum storm size, and transition dates. Prediction into the future would be subject to the uncertainties of rainfall forecasts.

Standard prediction relations (S). Prediction relations that can be used for a wide variety of soils and locations, but that require adjustments or corrections to allow for major changes in soil and site characteristics.

Transition date (S). A date at which the average depletion rate exhibits a distinct change as shown in the plot of the daily soil-moisture record. Four dates are found during the year corresponding to but not coinciding with the calendar-season dates.

Transition periods (S). The seasonal periods of the year in which the depletion rate is intermediate between that during summer and winter.

Spring and autumn are grouped together to determine the transition depletion curve.

Wetness index (S). A numerical index of five categories to express the effect of site conditions upon the maximum moisture content in the surface-to-one-foot-depth layer of soil. The degree of wetting is primarily determined by the depth to a perched or permanent water table, and the depth of penetration of water from precipitation.

Trafficability terms

Cone index (E). An index of the shearing resistance of a soil layer obtained with the cone penetrometer. The value is used as a dimensionless number, but is actually pounds of force on the handle divided by area of the cone base in square inches.

Cone penetrometer (E). A field instrument consisting of a 30-deg cone with a 1/2-sq-in. base area mounted on one end of a shaft, and a proving ring with dial gage and handle mounted on the other. An indication of the force required to move the cone slowly through a layer of soil material is registered on the dial. This dial reading is considered to be an index of the shearing resistance of the penetrated soil layer, and is called the cone index. A capacity load of 150 lb gives a cone index reading of 300.

Mobility (E). The ability of a vehicle to traverse terrain. In trafficability studies, the vehicle's ability to traverse terrain without recourse to a road network.

Rating cone index (E). The product of the measured cone index and the remolding index for the same layer of soil.

Remolding index (E). A ratio expressing the proportion of original soil strength that will obtain under the traffic of a vehicle. The ratio is determined from cone penetrometer measurements made before and after remolding a soil sample using a special instrument and procedures.

Soil strength (E). The resistance of a soil to an applied stress. The strength varies with moisture content and the nature, arrangement, and size distribution of the soil particles.

Trafficability (E). The ability of a soil to permit the movement of military vehicles.

PART II: SOIL-MOISTURE PREDICTION METHODS

13. The initial studies reported in Report 3 revealed the general relationships that form the basis of a usable prediction method.* Subsequent study has shown that no basic changes are needed in this method for satisfactory prediction of soil moisture in a wide variety of sites.

14. The prediction of soil moisture involves two processes, accretion and depletion, each of which requires individual consideration. Methods of developing the accretion and depletion relations and of making the soil-moisture predictions will be briefly discussed in the following pages. A more complete discussion is given in Report 3 which includes a study and evaluation of factors that influence soil-moisture change.

15. In all cases, soil-moisture prediction relations were developed for the 0- to 6-in. and 6- to 12-in. depths. The first step was to plot the daily march of soil moisture in inches of depth for the 0- to 6-in. and 6- to 12-in. layers. Rainfall occurrence was plotted as a bar graph on the same sheet (fig. 2). Soil-moisture prediction relations were developed empirically from this soil-moisture and rainfall record.

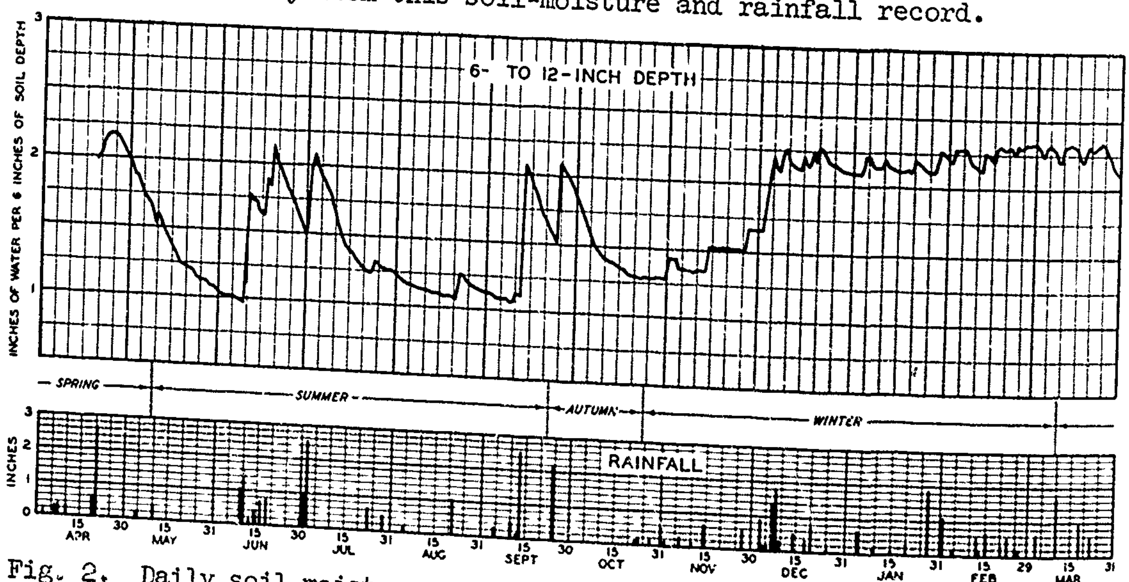

Fig. 2. Daily soil-moisture record and concurrent rainfall for Commerce silty clay at Mound, Louisiana, 1951-1952

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* C. A. Carlson, K. G. Reinhart, and J. S. Horton, "Predicting moisture in the surface foot of soil," Proceedings, Soil Science Society of America, vol 20, No. 3 (July 1956), pp 412-415.

Accretion

16. In the first study of accretion relations, it soon became evident that accretion in the surface foot of soil following a rainfall was governed mainly by the amount of rainfall and the amount of pore space available in the soil for storing water. During small storms when the soil was dry, accretion appeared to be related to the amount of rainfall. As storm size increased, accretion appeared to depend on the antecedent wetness of the soil, or the amount of available storage. These simple relationships formed the basis for the prediction of amounts of accretion. The various factors that influence accretion, such as the intensity and duration of rainfall, runoff and runon, interception by vegetation and ground-surface litter, topography, and the structure, texture, and organic matter content of the soil, are incorporated, at least to some extent, in the accretion relations.

17. These accretion relationships led to the formulation of two accretion classes:

Class I: total rainfall less than available storage in the 0- to 12-in. depth.

Class II: total rainfall equal to, or greater than, available storage in the 0- to 12-in. depth.

18. The method of deriving the accretion relations for a particular soil layer is briefly as follows:

a. The accretions (soil-moisture gains) are determined for each storm during the period by subtracting the soil-moisture content before the storm from the soil-moisture content soon after the storm.

b. The recurring maximum average soil-moisture content, called the field maximum,* is determined by examination of the moisture record. The available storage was then determined by subtracting the actual moisture content before the rain from the field maximum.

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* C. A. Carlson and R. S. Pierce, "The field maximum moisture content," Proceedings, Soil Science Society of America, vol 19, No. 1 (January 1955), pp 81-83.

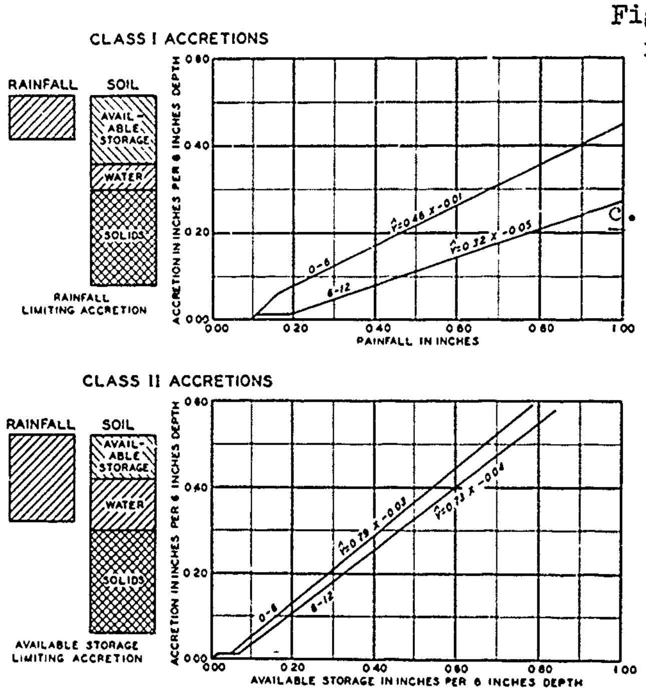

Fig. 3. Typical regressions for Class I and Class II accretions in Commerce silty clay

C. Class I accretion relations are derived for each 6-in. layer by computing regressions of rainfall against accretion and Class II by computing regressions of available storage against accretion (fig. 3). The regression line for Class I is drawn to zero accretion at the minimum storm size; for Class II it is adjusted to zero accretion at zero available storage (fig. 3).

19. The season of the year was found to have little effect upon accretion. Therefore, Class I and II accretions were derived from, and applied to, an annual record regardless of season.

20. Because the study was concerned only with the retention of water in the surface foot, the amount lost by surface runoff and through the surface foot were variables of secondary importance. The assumption was made in the early studies of Class I accretions that these storms characteristically had little or no runoff. In Class II accretions, where available storage is the limiting factor, it is immaterial whether the excess rainfall runs off the surface or percolates through the surface foot. It is possible for a site in a depression or at the base of a slope to have more accretion than rainfall. Consistent runoff or runon is shown in the slope of the regression line. Likewise, interception of rainfall by vegetation is automatically incorporated in the regressions.

21. Vegetation and ground cover entirely intercept very small storms; they are irrelevant in soil-moisture accretion. On the average, minimum-storm size considered in accretion is determined by selection of the smallest storm which shows a positive accretion. Storms smaller than minimum-storm size are rejected in deriving accretion relations.

22. If reliable accretion relations are to be derived, sufficient measurements of soil moisture before and after storms must be taken. At most sites, sufficient data were obtained so that storms with missing before- or after-storm moisture measurements were not used. At some sites with nondaily records, it was possible to extend the moisture record, using the depletion curves, to get usable before and after values. If the moisture content was known for only the day after the storm, the moisture content on the day prior to the storm was sometimes estimated by extending the drying curve. If the moisture content before the storm was known, but that immediately following the storm was not known, moisture content after the storm was estimated by extrapolating the subsequent drying curve backwards. This could be done for one or two days only. In a few cases, such as at several New Mexico, Washington, and California sites, where moisture records were obtained only one to three times a week and where few rains occurred, the moisture content was estimated both before and after the storm in order to obtain sufficient points to derive regressions. At a few sites, even though sufficient storms were experienced during the period of record, there were not enough before and after measurements to derive accurate data.

23. At some sites, particularly in northern latitudes, the soils did not dry sufficiently to provide enough variation in moisture conditions for derivation of accretion relations. Also, at many arid western sites not enough storms occurred to wet the soil sufficiently to furnish the data needed to develop reliable accretion relations (this was particularly true of Class II accretion).

Depletion

24. Depletion curves were derived for the 0- to 6-in. and 6- to 12-in. layers from the inter-rain portions of the graph of soil moisture. Examination of these soil-moisture records showed that soil-moisture depletion varied seasonally; summer rates were much greater than winter rates and spring and autumn rates about intermediate. Within each season, however, the rate of moisture loss appeared to be similar at comparable

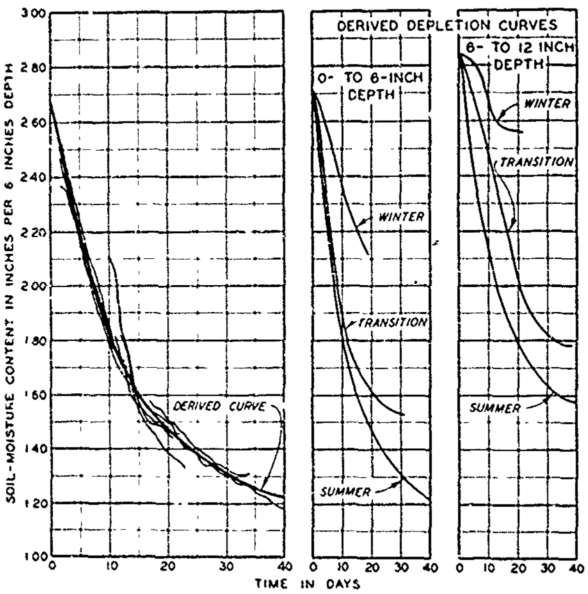

Fig. 4. Left: Derivation of a typical depletion curve from a family of 8 actual summer depletion curves. Right: Seasonal depletion curves, Commerce silty clay

moisture levels. Depletion portions were traced from the soil-moisture records in each season and it was found that a smooth curve drawn through the family of depletion tracings could be used to represent the depletion curve for each season. The spring and autumn seasons were sufficiently similar to permit using one curve called the transition curve, for these two seasons. A typical composite curve and a set of seasonal depletion curves are illustrated on fig. 4.

25. Determination of date for the shifting from one season to the next is often quite difficult and has been accomplished in most cases by an examination of the soil-moisture record, usually that for the 6- to 12-in. layer. Selection of dates for the starting of autumn and of winter are often especially difficult because the moisture level during this period in many locations is at a nearly constant field minimum. Phenological observations of coloration and fall of leaves and seasonal changes in air temperature are useful guides in selecting these transition dates. Frosts near the beginning of autumn or heavy frosts at the beginning of winter are reflected in shifts of depletion rates.

26. At a number of sites, the measurement of moisture content did not extend through a wide enough range to develop depletion relations. At one extreme, poorly drained soils such as the peat sites in Wisconsin and Alaska did not dry sufficiently. On the other hand, in arid sites, such as in New Mexico and Colorado where the soil did not become wet enough to reach the field maximum, values at the wet end of the curve were not observed and only fragments of the depletion curve could be drawn. However, prediction of soil moisture can be made satisfactorily

from these fragments as long as the moisture variation stays within the range studied.

27. The daily rate of moisture loss at the dry end of the curve was determined in some cases by extrapolating the curve. The wilting-point value (15-atm tension) was used as a guide in reducing the daily rate of loss to zero. In practice, when moisture content decreases beyond the depletion curve but has not approached the wilting point, approximately two, five, and ten days are required to remove 0.01 in. of water from each layer for the summer, transition, and winter seasons, respectively.

28. In arid climates or in areas with low summer rainfall, it was anticipated that trouble would be experienced in obtaining sufficient data under wet soil conditions. Artificial wetting of the soil was employed at some sites to bring the moisture content to a field maximum.

29. At some study areas maintained by the project, artificial wetting was performed so that the data on soil-moisture losses could be augmented. At first it was hoped that depletion rates following artificial and natural wetting would be similar and the two could be combined in developing depletion curves. However, comparison of depletion rates following the two conditions of wetting showed that the rates were not necessarily the same. In general, the depletion rates on artificially wetted plots were faster than the rates derived from natural rain. Fig. 5 illustrates the difference that may occur following conditions of artificial and natural wetting within the same season.

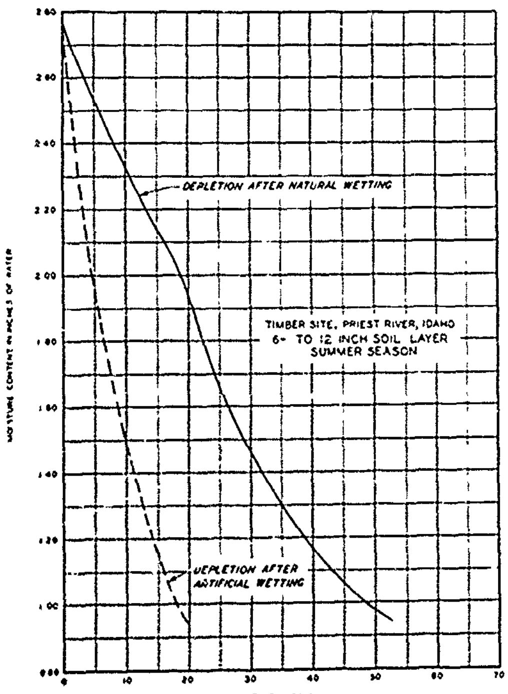

Fig. 5. Comparison of soil-moisture depletion after natural and artificial wetting

30. Artificial wetting was accomplished either by pouring water into water-holding rings driven into

the ground or by an infiltrometer* which sprinkles water uniformly over the soil surface. The area wetted was generally small, 6 ft in diameter or less, and differed in many respects from moisture conditions following natural storms. As might be expected, drying rates on these areas were faster than on the same type of area following natural wetting. It is probable that roots entering the wetted zone from the surrounding dry soil would utilize available moisture and also that moisture would be absorbed by the drier soil surrounding the wetted area. Evapotranspiration from the area would likewise be affected by movement of dry air from the surrounding unwetted area. Under conditions of natural wetting, a large enough area is wetted to eliminate the effect of the surrounding dry soil and to reduce or eliminate the movement of dry air masses into the area where depletion rates are being measured. In areas where average air humidity is high, as at Vicksburg, the difference between drying rates on artificially wetted and naturally wetted plots was generally less than in areas of low average humidity.

31. If a large enough area were to be artificially wetted, depletion rates within its center should be the same or very similar to rates after natural wetting in the same area. Thornthwaite** suggests that, in studies measuring potential evapotranspiration, the size of the buffer area surrounding the evapotranspiration tank should be 100 ft square in a moist climate and at least 1000 ft square in the desert.

32. Because of the divergence between the curves, no depletion data derived from artificial wetting are included in this report.

Sample Prediction

33. The prediction method was developed first for areas where

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* E. J. Dortignac, Design and Operation of the Rocky Mountain Infiltrometer, Rocky Mountain Forest and Range Experiment Station, Paper No. 5, Ft. Collins, Colo. (1951), 68 pp.

** C. W. Thornthwaite, "The measurement of potential evapotranspiration," (John R. Mather, ed.), The Johns Hopkins University Laboratory of Climatology, Publications in Climatology, Seabrook, New Jersey, vol VII, No. 1 (1954), pp 200-209.

rainfall was the only or principal accretion source, as at the majority of the sites studied, and secondly for areas where water-table fluctuations affected accretion and depletion for prolonged periods. Inasmuch as no additional analysis has been made of data collected from sites with water tables since publication of Report 3, this problem is not discussed further here. The effect of water table upon accretion and depletion is incorporated in the relations for any site if it is present. At Durden and Mound water-table observations were used in prediction of soil moisture; when the water table surfaced, depletion was delayed until free water had left the upper foot of soil.

34. The basic information needed for prediction of soil moisture in the 0- to 6-in. and 6- to 12-in. layers at the study sites is given in appendices F, G, and H. Appendix F gives the transition dates, field maximum, field minimum, and minimum storm size; appendix G, the formulae for determining the accretion relations; and appendix H, the depletion relations for the various seasons.

35. To make a prediction of soil moisture for any given time, one needs known or estimated starting soil-moisture contents, precipitation amounts by calendar days, the field-maximum moisture content expected for the soil at the sites, accretion and depletion relations, transition dates, and minimum storm size. If actual moisture is not known, the most recent occurrence of either field maximum or wilting point as estimated by inspection of weather records can be used as the starting point.

36. Table 1 is a sample prediction made during the period April 15 to May 15, 1952, at the herbaceous site located on Commerce silty clay near Mound, Louisiana. It illustrates Class I and Class II accretions, a storm less than minimum size, several depletion periods, and a transition of season.

37. In the tabulation, prediction begins in the spring transition period with actual moisture contents of 2.26 and 2.68 in. for the 0- to 6-in. and 6- to 12-in. layers, respectively. For each succeeding day with no storm, the predicted moisture content for each layer is read from the depletion curve for Mound transition period (appendix H).

38. The first storm of the period, a 0.19-in. rain, occurred on

April 20. Predicted moisture content values of 1.85 and 2.50 in. for April 20 before the storm were subtracted from field maximum moisture contents of 2.71 and 2.85 in. to determine available storage: 0.86 in. and 0.35 in. in the two layers, respectively. Available storage of 1.21 in the top foot of soil was greater than 0.19 in. of rainfall so the accretion from the storm was Class I. From the formula in appendix G, Class I accretion relations at Mound, at 0.19-in. rainfall, are 0.08 in. and 0.01 in. for the upper and lower layers. These were added to the predicted before-rain moisture contents of April 20 to give the predicted moisture contents of 1.93 and 2.51 in. for April 21.

Table 1

Sample Prediction of Soil-moisture Content for Mound (Herbaceous) Site

Apr 1952	Moisture Content, in. 0- to 6-in. Depth	Moisture Content, in. 6- to 12-in. Depth	May 1952	Moisture Content, in. 0- to 6-in. Depth	Moisture Content, in. 6- to 12-in. Depth
	2.71*	2.85*			
15	2.26**	2.68**	1	1.85	2.42
16	2.18	2.65	2 R	1.80	2.37
17	2.08	2.62	3	2.20	2.60
18	1.99	2.58	4	2.10	2.56
19	1.91	2.54	5	2.01	2.52
20 R	1.85	2.50	6	1.93	2.48
21 R	1.93	2.51	7	1.87	2.44
22 R	1.97	2.52	8	1.82	2.40
23	2.53	2.72	9 R	1.78	2.35
24	2.41	2.68	S 10 R	1.72	2.30
25	2.33	2.65	11	1.81	2.32
26	2.25	2.62	12	1.76	2.27
27	2.16	2.58	13	1.70	2.22
28	2.06	2.54	14	1.64	2.16
29	1.98	2.50	15	1.61	2.10
30	1.91	2.46			

Determination of Accretion Amounts for Use with Above Data

Date	Amt of Rain	Available Storage, in. 0- to 6-in. Depth	Available Storage, in. 6- to 12-in. Depth	Accretion Class	Accretion, in. 0- to 6-in. Depth	Accretion, in. 6- to 12-in. Depth
4/20	0.19	0.86	0.35	I	0.08	0.01
4/21	0.12	0.78	0.34	I	0.04	0.01
4/22	1.21	0.74	0.33	II	0.56	0.20
5/2	0.89	0.91	0.48	I	0.40	0.23
5/9	0.05	-----	-----	Below minimum storm size	-----	-----
5/10	0.22	0.99	0.55	I	0.09	0.02

* Field-maximum moisture contents.
** Actual values to start the prediction.
R Occurrence of rainfall.
S Beginning of summer season.

39. The accretion from the April 21 storm is Class I. The April 22 storm yielded a Class II accretion because total available storage of 1.07 in. was less than the rainfall of 1.21 in. Accretion values of 0.56 in. and 0.20 in. for the 0- to 6-in. and 6- to 12-in. layers, respectively, were determined from the formula in appendix G. The accretion values were added to predicted values for April 22 to obtain predicted values for April 23.

40. The predicted moisture contents for inter-rain periods for each succeeding day until May 10 were read from the transition depletion table in appendix H. The summer depletion table was used following that date. Accretion for the storms occurring on May 2 and 10 were determined from the proper formulae. The 0.05-in. storm of May 9 was less than the minimum storm size and was ignored, depletion being predicted as though no rain had occurred.

41. In actual practice moisture content is not determined for every day during depletion periods. Often, the value for the day following rainfall is determined and then no figures for soil moisture computed until the day before the next accretion.

42. Table 2 presents the day-by-day deviations of predicted from actual moisture contents for the Mound site.

Table 2

Deviations of Predicted from Actual Moisture Content for Mound (Herbaceous) Site

Apr 1952	Deviation, in. 0- to 6-in. Depth	Deviation, in. 6- to 12-in. Depth	May 1952	Deviation, in. 0- to 6-in. Depth	Deviation, in. 6- to 12-in. Depth
15	(Starting date)		1	-0.02	-0.08
16	0.00	0.00	2	+0.02	-0.07
17	-0.03	0.00	3	-0.08	-0.12
18	-0.04	+0.01	4	-0.10	-0.04
19	0.00	+0.01	5	-0.11	-0.03
20	+0.01	0.00	6	-0.08	-0.02
21	+0.09	+0.03	7	+0.06	-0.01
22	+0.08	+0.07	8	+0.01	0.00
23	+0.10	-0.02	9	+0.01	0.00
24	-0.04	-0.06	10	-0.06	+0.03
25	-0.08	-0.07	11	+0.06	+0.09
26	-0.08	-0.08	12	-0.05	+0.05
27	-0.05	-0.08	13	-0.10	+0.02
28	-0.08	-0.08	14	-0.11	0.00
29	-0.08	-0.08	15	-0.04	-0.02
30	-0.04	-0.09			

Accuracy of Soil-moisture Prediction

43. The accuracy of soil-moisture prediction was tested by comparing predicted to actual soil-moisture contents. In this study, predictions were made only for the period of record from which the relations were derived. Appendix I summarizes the average deviations and the number of comparisons made for the sites for which soil-moisture prediction relations were made.

44. In the study of the early sites, soil-moisture content was predicted and comparisons made for every day of the record. As can be seen in the sample prediction for Mound herbaceous site (table 1), large deviations, once they occur, are frequently carried forward from day to day until either the soil dries out or another storm occurs. In later studies, comparisons were made at intervals because prediction of moisture content was not made for every day during depletion periods. For most of these latter sites, comparisons were made only for the day before and after a storm. At four sites, intermediate values were included. Comparatively little difference is apparent between the amounts of deviation as computed by the several methods. The 66 sites for which deviations were computed for every day showed an average deviation of 0.08 in. of moisture for the 0- to 6-in. layer and 0.06 in. for the 6- to 12-in. layer. Deviations for the 47 sites with comparisons of only before- and after-storm moisture contents averaged 0.13 in. and 0.10 in. for the two layers. The lower deviations for the first method were due in large part to the larger number of values at the dry end of the depletion curve where errors were not so great. The five sites with intermediate values showed 0.18- and 0.19-in. deviations for the two layers.

45. In the preceding cases, the soil-moisture contents determined by the prediction relations were compared to the same soil-moisture record that was used to develop the relations. This shows only how well the prediction relations express average conditions at that site for the period measured. It does not indicate how accurately the relations can be used to predict soil moisture for a period which was not used in the derivation of these relations, or to predict moisture at a

different site having similar characteristics.

46. As a check on the wider application of the relations, those derived from one or two year's data were used in predicting soil-moisture content for a subsequent year. These predicted soil moistures were then compared to the actual soil-moisture record for that year and deviations were computed. These comparisons of deviations were limited to data from four locations: Vicksburg, Mississippi; East Texas; California; and Missouri. A summary of the comparisons is given in table 3. These figures frequently vary from those given in appendix I because different periods of record were used.

47. The deviations of predicted from actual moisture contents were usually not much greater for the subsequent year than for the derivation period. This is a verification of the applicability of the prediction because the subsequent year's data were not used in the derivation of the prediction relations. The average differences were almost the same for the sites at Vicksburg except for the Radiation bare site, which had an erratic first year record caused by the effect of TCA weed killer upon calibration of the fiberglas units. The three East Texas sites and eleven California sites showed 0.01 greater difference for the subsequent year than for the year relations were derived.

48. Predictions for the second year using relations of the first year for the University of Missouri sites were poor. This was probably due to the increased rainfall, including larger storms, which gave nearly twice the amount of water as the first year. As a further check, prediction relations were then derived from the combined two-year moisture record. Use of these relations reduced the deviations for the second year, but somewhat increased them for the first year.

49. The results shown in table 3 indicate that relations derived from one period can be used in another period, if weather conditions do not deviate greatly from one year to the next.

Table 3

Average Deviations of Predicted from Actual Moisture Contents for Derivation Period Compared to Those for Subsequent Year

Site		Derivation Period			Subsequent Year		
		0-6 in.	6-12 in.	No. of Compar-isons	0-6 in.	6-12 in.	No. of Compar-isons
Vicksburg							
Rifle, herbaceous		0.13	0.08	345	0.12	0.11	348
Mound, herbaceous		0.10	0.07	340	0.11	0.05	340
Radiation, herbaceous*		0.17	0.12	111	0.12	0.13	81
Radiation, clipped		0.15	0.13	59	0.15	0.14	81
Radiation, bare*		0.28	0.16	112	0.21	0.13	81
Avg		0.17	0.11		0.14	0.11	
East Texas							
Boswell		0.09	0.06	96	0.13	0.05	86
Sawyer		0.09	0.06	70	0.11	0.11	74
Huckabee		0.14	0.10	86	0.13	0.09	71
Avg		0.11	0.07		0.12	0.08	
California							
Lysimeter No.							
A	Buckwheat, California	0.15	0.07	36	0.19	0.13	34
B	Chamise	0.11	0.12	37	0.12	0.13	34
C	Ceanothus, hoaryleaf	0.08	0.11	36	0.12	0.12	33
D	Scrub oak, California	0.11	0.13	39	0.13	0.11	35
E	Pine, coulter	0.15	0.23	38	0.12	0.20	34
1	Bare	0.18	0.18	39	0.13	0.13	34
3	Grass	0.16	0.17	39	0.18	0.20	35
5	Buckwheat, California	0.12	0.15	39	0.18	0.19	33
9	Chamise	0.16	0.17	37	0.19	0.16	34
19	Scrub oak, California	0.12	0.11	40	0.13	0.13	35
24	Pine, coulter	0.22	0.16	39	0.17	0.14	34
	Avg	0.14	0.14		0.15	0.15	
University of Missouri							
Weldon, F.		0.07	0.05	68	0.18	0.26	63
Weldon, B.		0.09	0.08	64	0.23	0.20	62
Avg		0.08	0.06		0.20	0.23	
University of Missouri*							
Weldon, F.		0.11	0.06	63	0.14	0.12	63
Weldon, B.		0.14	0.07	64	0.19	0.11	62
Avg		0.12	0.06		0.16	0.12	

* A two-year moisture record was used for derivation of relations.

PART III: CURRENT STATUS AND RECOMMENDATIONS FOR FUTURE WORK

50. It has been shown that the prediction relations derived from detailed data collected from the study sites can be used for reasonably accurate predictions of soil-moisture content at those sites. It is now hoped to use these relations as a basis for development of standard prediction relations for application to the major soil types when detailed records are not available. In order to develop such standard relations, the derived relations must be correlated with various environmental factors influencing soil-moisture content. Early efforts at such correlations, discussed in Report 3, have been strengthened by information gathered at the additional sites. With this added information a preliminary set of standard relations has been derived.

51. The accuracy of standard moisture-prediction relations can be determined by applying these relations to the prediction of moisture in diverse sites and then checking the predictions against occasional soil-moisture measurements. For this purpose and to gather additional data on soil strength-moisture relationships, four field surveys were started in the summer of 1954. The surveys were located in the following regions: (1) the Southern, covering the states of Arkansas, Tennessee, Louisiana, Mississippi, Alabama, Georgia, and Florida; (2) the Northeastern, Pennsylvania, New York, Vermont, New Hampshire, Massachusetts, and Connecticut; (3) the Lake States, Wisconsin, Minnesota, Iowa, and Illinois; and (4) the Intermountain, Utah, Idaho, and Nevada.

52. These surveys established over 600 study sites where soil characteristics were determined and to which periodic visits were made to measure soil strength and soil moisture over a one-year period. Predictions of soil moisture were made for each of the sites using the preliminary relations developed from sites with detailed records. Results showed that some refinement was desirable.

53. To determine what refinements could be made in the standard relations, arrangements were made with the Statistical Laboratory at Purdue University to carry on a detailed statistical analysis which, it

is hoped, will provide information allowing a more accurate off-site prediction of soil-moisture content.

54. The recommendations for future work are as follows:

a. Continue correlation studies in cooperation with Purdue University to refine the prediction relations.

b. Apply these improved relations to the soil strength-moisture survey sites with special attention to the problems of cultivation and ground water.

c. Complete the study of tropical soils presently being conducted in Puerto Rico.

APPENDIX A: DESCRIPTION OF STUDY AREAS

1. This appendix points out some distinctive features of the various study areas that either are not included or are not stressed sufficiently in the other appendices. It also discusses any variations found necessary in the prediction method.

Vicksburg, Mississippi

2. The eleven sites maintained by the Forest Service near Vicksburg include those of the initial pilot studies established in 1951. Six of them were located in loessial uplands, three in minor stream bottoms on alluvium or colluvium derived from loess, and two in Mississippi River alluvium. Six sites were herbaceous covered; three were kept free of all vegetation by careful weeding or by use of chemicals. One site was in a hardwood forest and another in a pine plantation which had been established fifteen years previously in an old gullied field. Several of the sites were maintained for more than a one-year period. Eight of the sites were discussed in considerable detail in Report 3.

3. The Mound sites, in Madison Parish, Louisiana, are grouped with the Vicksburg sites in order to keep the original group of sites intact.

4. The sites on the Mississippi River alluvium at Mound and the stream bottom site on Durden Creek were influenced by high water tables during part of the year. At these sites ground-water observations were used in predicting soil moisture. When the water table surfaced, depletion was delayed until free water left the upper foot of soil.

Laurel, Mississippi

5. The five sites near Laurel were within the Coastal Plain geological province. With the exception of one site which was kept bare by weeding, the vegetation consisted of open forest with herbaceous cover. These sites were the first to be established and maintained by the Forest Service away from Vicksburg. They were in operation from June

to September 1952, and from January to April 1953. This discontinuous record did not include a transition period but sufficient storms occurred for derivation of fairly satisfactory prediction relations (for a more detailed account see Report 3).

State College, Mississippi

6. Through the cooperation of the Soil Conservation Service, soil-moisture records for a 3-1/2-year period were secured for two sites at Mississippi State College and reported upon in Report 3. The soils were derived from Coastal Plain material (calcareous marine sediments). Vegetation on one site was predominantly Bermuda grass; the other site was kept completely bare.

7. The data were collected twice a week, which reduced the number of storms available for accretion analysis. However, prediction relations were derived.

Oxford, Mississippi

8. Three sites were established by the Tallahatchie Research Center of the Southern Forest Experiment Station in pine plantations of equal age on three different soil types. The soils were composed of shallow loess overlying Coastal Plain material.

Alexandria, Louisiana

9. The two sites near Alexandria were within the Coastal Plain soil province. Soils at both sites were silt loams, differing only in degree of internal drainage. Vegetation was principally herbaceous with widely scattered small trees. These sites were maintained by the Alexandria Research Center of the Southern Forest Experiment Station from February 3 to June 26, 1954. This record did not provide a summer drying period long enough for determination of a field-minimum moisture content. Accretion regressions were developed from only four Class I

and four Class II storms; they are not considered very reliable.

Nacogdoches, Texas

10. Three sites were located about 10 miles southwest of Nacogdoches, on the Stephen F. Austin Experimental Forest maintained by the East Texas Research Center of the Southern Forest Experiment Station. They were on soils developed from Coastal Plain materials. Two sites were of a loamy fine sand ranging to loam, and were located on a level to moderately sloping upland. The third site was a fine sandy loam on a level to gently sloping alluvial terrace. Vegetation consisted of loblolly and shortleaf pine with a hardwood understory.

11. Good prediction relations were developed from daily records taken for a one-year period.

Crossett, Arkansas

12. Seven sites were established in 1953 at the Crossett Experimental Forest, a branch of the Southern Forest Experiment Station, and maintained by personnel from the Vicksburg Project. All of the sites were on silt loams; four were forested; two were kept bare; and one had herbaceous cover. All sites had a perched water table, and this slow drainage was incorporated into depletion rates; this particularly affected the winter curves.

Marianna, Florida

13. Two sites on the Chipola Experimental Forest, a part of the East Gulf Coast Research Center of the Southern Forest Experiment Station, were started by the Vicksburg Project and maintained by Chipola Forest personnel. The soils were deep sands; one site was covered with scrub oak and the other kept bare of vegetation. The soils were extremely low in available water content due to low retention properties. The high percentage of big pores also accentuated the excessively drained condition

of the soils. Coarse-grained soils of this type do not come under the scope of the original study of the trafficability of fine-grained soils, but the project was expanded to see if the soil-moisture prediction method would work in such sandy soils.

14. Only the forested site could be used for the derivation of prediction relations. Moisture data collected at the bare area varied too widely to permit determining satisfactory prediction relationships.

15. At the scrub-oak site, only summer and winter depletion curves were needed to predict moisture loss throughout the year; intermediate transition curves were unnecessary. Satisfactory moisture prediction was made for this coarse-grained soil.

Union, South Carolina

16. Daily soil-moisture records for a two-year period were obtained from five sites by the Central Piedmont Research Center, Southeastern Forest Experiment Station. Results of analysis of these data were reported in Report 3. The sites were located on the Calhoun Experimental Forest, about seven miles southwest of Union, South Carolina, and were either bare, herbaceous, or covered with various-aged pine plantation. They were located in old fields which had been abandoned within the past fifty years. Red and yellow podzolic soils of this area were derived from weathered gneiss of the Piedmont province. Annual rainfall for the period of record was about seven inches less than normal, whereas temperature was about 2 F higher than normal.

Poplar Bluff, Missouri

17. Two sites were established in cooperation with the University of Missouri at the University Forest, 17 miles northeast of Poplar Bluff. Both sites were on silt loam soils, one with hardwood cover and one cleared of forest.

18. The first year of the study was dry, but the second year had much more rainfall, including several large storms.

Robbs, Illinois

19. Another cooperative study site was established with the University of Illinois at one site. The soil was developed from loessial material with a hardpan at about 24 in. from the surface. Vegetative cover consisted of a pine plantation.

20. Weather at this site during the period of record was quite similar to that of many others in that it reflected the drought of the past few years. Relatively few Class II accretions were experienced.

Dilldown, Pennsylvania

21. Soil-moisture records were secured from three sites located about 31 miles southeast of Wilkes-Barre, Pennsylvania, in the Delaware-Lehigh Experimental Forest, a branch of the Northeastern Forest Experiment Station. These sites had a cover of scrub oak on soils derived from sandstone and shale of the Appalachian ridges. The period of record was wetter than normal, thereby producing data with only short periods of depletion and with the soil moisture almost never reaching wilting point. The soil was usually frozen from January to March and winter depletion curves were based upon short periods before and after freezing. Soil-moisture predictions at these sites are described in Report 3. Due to lack of field calibration of the fiberglas units, there may be some errors or discrepancies in actual soil-moisture readings. Thus, relations derived from these records will be used with caution in the correlation study.

Bangor, Maine

22. Three forested sites were established in the summer of 1955 near Old Town, Maine, by the Penobscot Research Center, Northeastern Forest Experiment Station, in cooperation with the University of Maine. These sites were in gravelly loam with a definite hardpan at one to four feet. The soil surface was hummocky with standing water in the

hollows early in the season. Daily samples were taken gravimetrically.

23. The moisture samples showed a very wide variability due to the irregularity of the ground surface which caused unequal wetting and drying. Differences as great as 15 per cent moisture (by weight) were not uncommon between replicate samples. Though reliable prediction relations could not be developed, the study was of value in demonstrating the need for special consideration of such areas if they are classed as trafficability problems.

Rhinelander, Wisconsin

24. Fourteen sites were selected and maintained by project personnel in north central Wisconsin in the vicinity of Rhinelander. Eleven of the sites were silt loams and sands of glacial till origin; seven of these were forested; three had herbaceous cover and one was kept bare. The remaining three sites were in peat under black spruce, alder, sedge, and willow.

25. Four of the sites were located in poorly drained or swampy areas which did not dry out sufficiently to develop depletion curves. At the bare site, use of sodium trichloroacetate as a weed killer affected the electrical units to such an extent that the soil-moisture record could not be used. A sloping site was established in very sandy soil which was too variable in soil moisture for derivation of prediction relations. However, a neighboring site in the same soil type had a fiberglas unit record which was satisfactory. The ground was frozen and usually covered with snow for nearly four months and records obtained during this period could not be used to determine soil moisture.

26. Only three sites had fiberglas units that were read daily or thrice-weekly. At the other sites moisture contents were measured by gravimetric means, usually only once a week. The weekly soil-moisture measurements at a site without units were correlated with the moisture readings at a distant site with fiberglas units. After the relationship between the two sites was determined, unit readings could be used to interpolate intermediate points in the soil-moisture record of the site

without units. By using this method, reliable prediction relations were derived for five of the sites with gravimetric records.

Miles City, Montana

27. Three sites were established near Miles City, in southeastern Montana, by project personnel in cooperation with the Agricultural Research Service. The sites were located in clay soils typical of this semiarid region with an average annual rainfall of 13 in. The record extended only from April to August and thus did not include any winter conditions. No Class II accretions were obtained because, with the continuous dry-soil conditions, available storage space exceeded precipitation for the few rains experienced. Likewise, none of the sites became wet enough to approach the expected field maximum; thus all depletion curves are fragmentary.

Priest River, Idaho

28. Six sites were selected in the vicinity of Priest River Experimental Forest, a branch of the Intermountain Forest and Range Experiment Station, approximately 50 miles northeast of Spokane, Washington. Five of the sites have silt loam or loam soils derived from glacial drift. The soil at one site was a peat that remained near saturation during the entire period of study. Three of the sites were forested, two had herbaceous cover, and one was kept bare. Topography varied from flat valley land to steeply rolling or hilly; elevation was about 2300 ft. As in the case of the Montana sites, no winter records were obtained. At the bare site, where available storage was low due to much slower loss of water by evapotranspiration, enough Class II storms occurred for derivation of accretion relations. Accretion relations were estimated for the few Class II storms that occurred on the vegetated sites.

Rockford, Washington

29. Five sites were maintained in rolling upland about 20 miles

southeast of Spokane in a belt of Palouse and related soils. Four of the sites had been recently cultivated and two of them sown to wheat; one site was in a grove of ponderosa pine. Accretions were estimated for the several Class II storms that occurred because insufficient data were obtained to derive accretion regressions for Class II storms. Depletions were obtained for the late winter. Most summer and transition depletion curves are fragmentary.

Tanbark Flat, California

30. Soil-moisture records were obtained for three sites on the San Dimas Experimental Forest, a branch of the California Forest and Range Experiment Station, located in the San Gabriel Mountains at an elevation of about 2800 ft and about 30 miles northeast of Los Angeles. These records were collected on an irregular time schedule. During the rainy season, records were taken at frequent intervals, but rarely every day. They were taken weekly in dry periods.

31. Records from these sites were used in Report 3. One site had a mixed chaparral cover, one was bare, and one was planted to sunflowers. The sunflower site was on land that had been artificially made from the same soil as that placed in the San Dimas lysimeters described below.* Soils were fine sandy loam to sandy loam in texture and were derived from residual material weathered from granitic rock. Because of the sharp contrast between a long dry summer and a rainy winter, the spring and autumn periods were not discernible and no separate depletion curves could be drawn for the transition periods.

32. Additional soil-moisture records were obtained from eleven San Dimas lysimeters, five unconfined and six confined. All of the lysimeters had been artificially filled with soil in 1937 and calibrated for 9 years before they were planted to the present species in 1946. The

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* E. A. Colman and E. L. Hamilton, The San Dimas Lysimeters, California Forest and Range Experiment Station, Forest Research Note No. 47, Berkeley, Calif. (1947).

five unconfined lysimeters consist of square pits, 17-1/2 ft on a side and 7 ft deep, filled with a uniform sandy loam soil, and planted as follows:

Unconfined Lysimeter	Cover
A	California shrub buckwheat (*Eriogonum fasciculatum foliolosum*)
B	Chamise (*Adenostoma fasciculatum*)
C	Hoaryleaf ceanothus (*Ceanothus crassifolius*)
D	California scrub oak (*Quercus dumosa*)
E	Coulter pine (*Pinus coulteri*)

The confined lysimeters are rectangular concrete boxes 10 by 20 ft, filled with 6 ft of uniform sandy loam soil. The cover was as follows:

Confined Lysimeter	Cover
1	None (maintained bare)
3	Grass (mixed bunch and annual species)
5	California shrub buckwheat
9	Chamise
19	California scrub oak
24	Coulter pine

33. In years of heavy rain, the concrete floor of the confined lysimeters can cause a perched water table. During the period of study, however, this occurred only in the grass lysimeter.

34. While the artificial nature of the soils of the lysimeters may make the application of their prediction relations to field soils questionable, they provide a reliable check on the prediction method and afford good comparisons between the species planted.

35. Due to the comparatively few storms and lack of soil-moisture measurements just before or after storms the accretion relations from the California sites are rather weak and predictions were not as accurate as at most other sites.

Madera County, California

36. Records from an additional four sites at two locations were obtained from the California Forest and Range Experiment Station and are discussed in Report 3. Two sites were the North Fork Experimental

Area near the Sierra National Forest Headquarters about 40 miles northeast of Fresno; one site was in woodland-chaparral; the other was in an area kept bare of vegetation. Sites near Bass Lake were in second-growth ponderosa pine and in a denuded area. No separate transition depletion rates were indicated by the moisture record.

Delta, Colorado

37. Soils of the 17 sites established by project personnel near Delta were derived from basalt, shales, and sandstones. These were chosen from five general areas ranging in elevation from 5000 to 10,000 ft. Basalt covered the top of the mesa, and was underlain by soft shale and sandstone. In the course of glaciation, the basalt was carried down the slopes and has been the dominant parent material from the top of the mesa to the desert. During this glacial depositional process, shale and basalt alluvium became mixed in some places. Thus, besides being derived from basalt, soils of the prediction sites are also derived from Wasatch shale, Mesaverde shale, and Mesaverde sandstone. Mancos shale is found in the desert plains and badlands.

38. Vegetation on the sites varied with elevation from shadscale in the desert to spruce-fir clumps in the mountain meadows of the mesa. Between these extremes are zones of pinon-juniper, oakbrush, and aspen.

39. The climate varies with elevation and aspect. At low elevations annual precipitation seldom exceeds 10 in., the growing season is long, and the winters comparatively mild. At high elevations precipitation may exceed 30 in., summers are short, and winters severe.

40. No Class II accretions could be developed because of the lack of large storms. In most cases, except in early spring, the soil moisture did not reach field maximum and only fragmentary depletion curves could be derived. Winter records were not obtained at the higher altitudes.

41. The usual concept of winter, summer, and transition cannot be applied very satisfactorily to the depletion rates. The records started in the dry summer period and extended into the dry autumn which

was terminated by winter snows with no previous rainfall. By the time snow left the higher elevation sites, spring conditions were evident and no winter depletion data could be collected. The project closed before summer, and moist summer conditions were not observed. Thus, many sites lack winter depletion curves, have only fragmentary summer curves for the dry portion, and have transition depletion curves based on wet spring and dry fall conditions, often without intermediate data. In spite of these difficulties, predictions could be made quite accurately within the range of conditions experienced.

Albuquerque, New Mexico

42. Seven prediction sites were installed by project personnel within a 30-mile radius of Albuquerque. Vegetative types ranged from sparse desert to pinon-pine woodland. Most of the sites were herbaceous; however, one site was kept free of vegetation and one was in a clump of pinon-juniper.

43. At the bare site, high-intensity storms occurring principally in the summer required different accretion regressions. This probably resulted from greater runoff during these high intensity bursts and, therefore, less accretion from the bare site than from the vegetated sites. The equation for the 0- to 6-in. layer was Est $Y = 0.69x - 0.10$ for normal storms and Est $Y = 0.13x - 0.02$ for the high-intensity storms, where Y represents accretion and x is the amount of rainfall.

44. Class I accretions could not be developed for the 6- to 12-in. layer at the site designated Sandia Mesa because this layer was never wetted by the small storms occurring during the period of record.

45. Only one storm large enough to cause a Class II accretion occurred, so the actual accretion value was used in prediction.

46. At nearly all sites the soils did not reach the expected field maximum moisture. In most of these cases, depletion curves were not extended to the field maximum. However, the curve fragments were used successfully in moisture predictions.

47. Because of variability in elevation and fairly wide separation

of sites, it was necessary to use climatic data normals from several stations.

Fairbanks, Alaska

48. A study of 13 sites was made during the summer of 1954 in various forest and herbaceous types in the vicinity of Fairbanks, Alaska, where average annual rainfall is only about 12 in. Rainfall amounts for the spring, summer, and fall were 0.77, 5.84, and 1.82 in., respectively, which did not furnish enough moisture to allow derivation of Class II accretions. The actual accretion was used in prediction when the one or two Class II storms did occur. These sites did not become sufficiently wet to exhibit more than fragmentary summer depletion curves. In contrast, three poorly drained sites remained frozen until July and did not dry sufficiently for derivation of depletion curves. No winter data were collected and transition data were usually incomplete.

APPENDIX B: LOCATION AND ENVIRONMENT OF SITES

1. Table B1 summarizes the vegetation, land use, location, elevation, topography, ground-water condition, type and frequency of moisture readings, and the length of the moisture-record period at the 131 sites studied. These items are discussed briefly in the following paragraphs.

Vegetation

2. A short descriptive statement of the vegetation type found on the study sites is included in table B1 but certain other data that may be of value in further analysis of moisture prediction are not included. For example, composition, growth, and density of vegetation at the experimental areas established by the Vicksburg Infiltration Project were observed and recorded periodically, usually monthly, in an attempt to determine the dates when rates of soil-moisture loss changed by season. At the forested sites, in addition to a careful inventory of individual trees, detailed records were taken of the development of foliage in the spring and the leaf coloration and fall in the autumn as a further aid in determining critical dates affecting soil-moisture changes.

3. Vegetation records from many sites were limited. Often they consisted only of type descriptions and included no discussion of phenology.

Land Use

4. Some of the sites have been disturbed by man's activity such as cultivation, grazing by livestock, or the cutting of hay. In general, this activity must have been carried on within the last five years to be noted in table B1. In several cases older activity is mentioned such as the planting of old eroded fields to trees. Cultivation is indicated if marks of disturbance are still visible. In some cases, the cultivated fields have been idle for some years or had reverted to pasture several years before the study. In other cases, cultivation was carried on in

the season before the study and the effect was quite pronounced. Many of the sites were being grazed at the start of the study but were fenced to prevent grazing during the course of the study.

5. Logging was not considered unless the site had been cut over within the preceding five years.

6. All vegetation was removed from the bare plots at the start of the study and the sites were kept free of plants by chemicals or by the pulling of any volunteer weeds. Several western sites were established in naturally bare areas which were free of all plants.

Location and Elevation

7. Location (latitude and longitude) and elevation of the sites were determined from U. S. Geological Survey topographic maps.

Land Form

8. The following tabulation is a key to the land form symbols used in table B1. This classification system is based upon decisions reached at a conference held by the Corps of Engineers in January 1953 at the Waterways Experiment Station, and revised in February 1955.

Key to Land Form Symbols

I. Glacial

- A. Nonsoil
- B. Ice
- C. Lacustrine
- D. Drift
  - 1. Outwash
  - 2. Till plain
    - a. Old-layered
    - b. Young-plastic
    - c. Young-granular
  - 3. Moraines
  - 4. Eskers

II. Water Deposited

- A. Deltas
  - 1. Natural levees
  - 2. Swamp
- B. Flood Plains - Active
  - 1. Undifferentiated alluvium
  - 2. Natural levees
    - a. Crevasse
  - 3. Swamp
  - 4. Point bars
  - 5. Mud flats

(Continued)

Key to Land Form Symbols (Continued)

II. Water Deposited (Continued)

- C. Flood Plains - Terrace
  1. Undifferentiated alluvium
  2. Natural levees
  3. Swamps
  4. Point bars
- D. Piedmont Alluvium
  1. Alluvial cones
  2. Bajadas
  3. Alluvial aprons
  4. Playas
- E. Coastal Plains
- F. Desert Plains
- G. Beaches
- H. Lacustrine

III. Aeolian

- A. Loess
- B. Sands

IV. Residual

- A. Sedimentary Rocks
  1. Limestone
  2. Shale
  3. Sandstone
  4. Limestone and shale

IV. Residual (Continued)

- A. Sedimentary Rocks (Continued)
  5. Sandstone and shale
- B. Igneous and Metamorphic Rocks
  1. Basalts
  2. Metamorphic
  3. Intrusive
- C. Unconsolidated Sediments
  1. Clays
  2. Sands
  3. Mixed

V. Miscellaneous

- A. Evaporites
- B. Pyroclastics
- C. Organic
  1. Muskeg
  2. Peat
  3. Swamp
- D. Laterites
- E. Varved clays
- F. Colluvial

Topography

9. While most of the sites are on nearly level ground, a few slope enough to make topography an important factor. They are classified as occupying either uplands, bottom lands, or terraces plus additional information with regard to position on the slope, i.e., for uplands and terraces -- flat ridge, upper slope, and depression; and for bottom lands -- flat and depression. Both surface and internal drainage are described as good, moderate, or poor.

Ground-water Measurements

10. Observation wells were dug at the bottom-land sites established

during the first two years. The deeper wells were 5 in. in diameter and about 10 ft deep. Shallow wells, 1 ft and 3 ft in depth, were also installed at each of the bottom-land sites under observation and at the upland sites having perched water tables. No well measurements in addition to those discussed in Report 3 have been utilized in prediction analysis except for determination of wetness index.

Wetness Index

11. The wetness index (WI) is an attempt to express numerically the effect of site conditions upon maximum moisture content in the surface foot of soil. The degree of wetting is influenced by the depth to a perched or permanent water table. When the water table is at the surface, or within the surface foot, the soil in this layer is saturated or nearly so. When the water table is between 1 and about 4 ft below the surface, the moisture in the top layer is affected by the capillary fringe above the water table. Deeper water tables do not influence the surface foot of soil. At some eroded sites in humid climates where a high percentage of runoff occurs and at many sites in subhumid and arid climates, moisture wets the surface layer but does not penetrate the soil deeply enough to cause free drainage at any time during the course of a year.

12. The wetness index was determined by the maximum height of the water table as measured in a well or auger hole at the site. The water table must maintain this height for at least one day during each year. The wetness index has the following five categories:

WI	Potential Wetness	Depth to Water Table	Depth of Wetting	General Characteristics of Sites
0	Arid	Indeterminable	Less than 1 ft	Nothing specific
1	Dry	Indeterminable	1-4 ft	Steeply sloping, denuded, or severely eroded and gullied.

(Continued)

WI	Potential Wetness	Depth to Water Table	Depth of Wetting	General Characteristics of Sites
2	Average	More than 4 ft	More than 4 ft	Well-drained soil with no restricted layers or pans. Fair to good internal and external drainage. Slope may be flat to steep.
3	Wet	1-4 ft	To water table	Not well-drained soil. Restricted layers or deep pans may be present. May occur at base of slopes, on terraces, upland flats, or bottom lands.
4	Saturated	Less than 1 ft	To water table	Waterlogged or flooded sites at least part of the year. Bottom lands subject to frequent overflow. Upland flats with poor internal drainage or shallow pans. Slopes with very poor internal drainage.

Soil-moisture Measurement

13. Fiberglas electrical-resistance units were used to measure soil-moisture* at most of the sites established by the project and at many established by cooperators. Full details of the units, their installation, and the problems involved in their calibration and use are contained in Report 3 and in Southern Station Occasional Papers 128,** 135,† and 140.††

14. Soil moisture at some of the sites was measured only by gravimetric means. This method introduces greater error due to sampling variation, but eliminates the instrumental error of the fiberglas units. In general, however, relations derived from these sites are weaker due to

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* E. A. Colman, Manual of Instructions for Use of the Fiberglas Soil-moisture Instrument, Berkeley, Calif., California Forest and Range Experiment Station (1947, rev. 1950).

** Southern Forest Experiment Station, Soil-moisture Measurement with the Fiberglas Instrument, Occasional Paper 128, New Orleans, La. (1953).

† Southern Forest Experiment Station, Some Field Laboratory and Office Procedures for Soil-moisture Measurement, Occasional Paper 135, New Orleans, La. (1954).

†† H. W. Lull and K. G. Reinhart, Soil-moisture Measurement, Occasional Paper 140, New Orleans, La., Southern Forest Experiment Station (1955).

the less frequent observations which varied from daily to semimonthly. In several cases where frequency of reading at the site changed during the period of record, the prevalent interval is indicated in the table.

Table B1

[illegible]

Site	Vegetation	Land Use	Latitude	Longitude	Elevation ft	Eng Conf Land Form	Aspect	Position*	Topography: Slope %	Topography: Drainage Surface	Topography: Drainage Internal	Ground Water Table: Type	Ground Water Table: Time of Influence	Wetness Index	Moisture Measurement: Method	Moisture Measurement: Frequency	Moisture Measurement: Period of Record
Mississippi (incl Mound, La.)																	
Vicksburg, Warren Co.																	
Park	Herbaceous	Hay	32°21'	90°53'	300	III A	E	U upper slope	10	Good	Moderate	None	Never	2	Elec	Daily	Apr '51-Mar '52
Rifle, Herbaceous	Herbaceous	Hay	32°21'	90°53'	100	II B1	Level	B flat	Level	Moderate	Moderate	Permanent	Wet season	4	Elec	Daily	Apr '51-Mar '53
Rifle, Bare	Bare	Bare	32°21'	90°53'	100	II B1	Level	B flat	Level	Moderate	Moderate	Permanent	Wet season	4	Elec	Daily	Apr '51-Mar '52
Durden	Herbaceous	Hay	32°21'	90°53'	145	VF	Level	B flat	Level	Moderate	Moderate	Permanent	Wet season	4	Elec	Daily	Jan '52-Mar '53
Hardwood	Native hardwood forest	Undisturbed	32°21'	90°53'	200	III A	NE	U ridge	5	Good	Good	None	Never	2	Elec	Daily	Apr '52-Mar '53
Pine	15-yr loblolly pine	Eroded woodland pasture	32°21'	90°53'	200	III A	E	U ridge	12	Good	Good	None	Never	1	Elec	Daily	Apr '52-Mar '53
Radiation, Herbaceous	Herbaceous	Hay	32°21'	90°53'	200	III A	Level	U flat	Level	Good	Good	None	Never	-	Elec	5/week	Mar '53-Feb '56
Radiation, Bare	Bare	Bare	32°21'	90°53'	200	III A	Level	U flat	Level	Good	Good	None	Never	2	Elec	5/week	Mar '53-Feb '56
Radiation, Clipped	Herbaceous	Hay	32°21'	90°53'	200	III A	Level	U flat	Level	Good	Good	None	Never	2	Elec	5/week	Mar '54-Feb '56
Mound, Madison Parish, La.																	
Mound, Herbaceous	Herbaceous	Grazed	32°21'	90°53'	80	II B2	Level	B flat	Level	Moderate	Poor	Permanent	Wet season	4	Elec	Daily	Apr '51-Mar '53
Mound, Bare	Bare	Bare	32°21'	90°53'	80	II B2	Level	B flat	Level	Moderate	Poor	Permanent	Wet season	4	Elec	Daily	Apr '52-Mar '53
Laurel, Jones Co.																	
Stockman, Upper	Herbaceous and scrub trees	Grazed	31°34'	89°09'	225	II C1	Level	T upper slope	Level	Moderate	Poor	None	Never	2	Elec	Daily	June '52-Aug '52 Jan '53-Mar '53
Stockman, Lower, Herb.	Herbaceous and scrub trees	Grazed	31°34'	89°09'	225	II C1	E	T lower slope	5	Poor	Poor	Permanent	Wet season	4	Elec	Daily	June '52-Aug '52 Jan '53-Mar '53
Stockman, Lower, Bare	Bare	Bare	31°34'	89°09'	225	II C1	E	T lower slope	5	Poor	Poor	Permanent	Wet season	4	Elec	Daily	July '52-Aug '52 Jan '53-Mar '53
Jefcoate	Herbaceous and cutover scrub forest	Logged	31°40'	89°14'	250	IV C3	W	U lower slope	5	Moderate	Poor	Perched	Wet season	3	Elec	Daily	June '52-Aug '52 Jan '53-Mar '53
Clarke Co.																	
Eddins	Herbaceous	Grazed	32°05'	88°54'	250	IV C1	Level	U flat	Level	Poor	Poor	Permanent	Wet season	4	Elec	Daily	June '52-Aug '52 Jan '53-Mar '53
State College, Oktibbeha Co.																	
Vaiden Complex, Herb.	Herbaceous	Undisturbed experimental plot	33°27'	88°47'	425	IV C1	W	U upper slope	6	Moderate	Poor	Perched	Wet season	4	Grav	2/week	Jan '44-Aug '47
Vaiden Complex, Bare	Bare	Bare	33°27'	88°47'	425	IV C1	W	U upper slope	6	Moderate	Poor	Perched	Wet season	4	Grav	2/week	Jan '44-Aug '47
Oxford, Lafayette Co.																	
Providence	15-yr shortleaf pine	Undisturbed	34°30'	89°30'	355	III A	SE	U flat	8	Poor	Moderate	None	Never	2	Elec	5/week	Apr '54-Apr '55
Tippah	15-yr shortleaf pine	Undisturbed	34°30'	89°30'	355	III A	NE	U upper slope	15	Good	Moderate	None	Never	2	Elec	5/week	Apr '54-Apr '55
Lexington	15-yr shortleaf pine	Undisturbed	34°30'	89°30'	355	III A	SE	U upper slope	10	Good	Good	None	Never	2	Elec	5/week	Apr '54-Apr '55
Louisiana (excl Mound)																	
Alexandria, Rapides Parish																	
Savannah	Herbaceous	Grazed	31°04'	92°41'	180	IV C3	W	U upper slope	5	Good	Moderate	None	Never	2	Grav	5/week	Feb '54-June '54
Caddo	Herbaceous	Grazed	31°04'	92°41'	180	IV C3	Level	U depression	Level	Poor	Poor	Perched	Wet season	4	Grav	5/week	Feb '54-June '54
Texas																	
Nacogdoches City & Co.																	
Boswell	Loblolly pine, red & post oak with oak & shrub understory	Undisturbed	31°30'	94°46'	215	IV C3	W	U upper slope	14	Good	Moderate	None	Never	2	Elec	Daily	Nov '52-Apr '55
Sawyer	Loblolly pine, red & post oak with oak & shrub understory	Undisturbed	31°30'	94°46'	230	IV C3	N	U lower slope	8	Moderate	Moderate	None	Never	2	Elec	Daily	Nov '52-Apr '55
Huckabee	Loblolly & shortleaf pine, red oak with oak, gum, & shrub understory	Undisturbed	31°30'	94°46'	225	II C1	N	T upper slope	6	Good	Good	None	Never	2	Elec	Daily	Nov '52-Apr '55
Arkansas																	
Crossett, Ashley Co.																	
Headquarters, Forest	Loblolly pine with pine & hardwood understory	Undisturbed	33°02'	91°56'	160	II C1	Level	T flat	Level	Poor	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54
Headquarters, Bare	Bare	Bare	33°02'	91°56'	160	II C1	Level	T flat	Level	Poor	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54

(Continued)

* U = upland; B = bottom land; and T = terrace.

Table B1 (Continued)

Site	Vegetation	Land Use	Latitude	Longitude	Elevation ft	Veg. Conf. Land Form	Aspect	Position*	Topography Slope %	Drainage Surface	Drainage Internal	Ground Water Table Type	Time of Influence	Index	Moisture Measurement Method	Frequency	Period of Record
Arkansas (Continued)																	
Crossett, Ashley Co. (Continued)																	
Pine-Hardwood	Uneven aged loblolly pine and hardwood	Undisturbed	33°04'	91°55'	160	II C1	Level	T flat	Level	Poor	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54
Prairie, herbaceous	Herbaceous	Grazed	33°06'	91°55'	160	II C1	Level	T flat	Level	Poor	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54
Prairie, Bare	Bare	Bare	33°06'	91°55'	160	II C1	Level	T flat	Level	Poor	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54
Brushy Creek	Red oak and gum	Undisturbed	33°09'	92°02'	160	II B1	Level	B flat	Level	Moderate	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54
Sandy	Loblolly pine with girdled hardwoods	Undisturbed	33°10'	92°03'	160	II C1	Level	T depression	Level	Poor	Poor	Perched	Wet season	4	Elec	Daily	Apr '53-Apr '54
Florida																	
Marianna, Jackson Co.																	
Lakeland, Forest	Scrub oak with wire grass understory	Undisturbed	30°25'	85°16'	140	IV C2	Level	U lower slope	Level	Good	Good	None	Never	2	Elec	3/week	June '53-Nov 55
South Carolina																	
Union City & Co.																	
Barren-Eroded, 2	Bare	Eroded farmland	34°36'	81°41'	500	IV B2	NE	U upper slope	4	Moderate	Moderate	None	Never	2	Elec	Daily	May '50-Apr '52
Lloyd, 3	Herbaceous	Idle	34°37'	81°40'	500	IV B2	Level	U upper slope	Level	Moderate	Moderate	None	Never	2	Elec	Daily	June '50-Apr '52
Loblolly, 5	15-yr loblolly pine	Undisturbed	34°36'	81°41'	500	IV B2	Level	U upper slope	Level	Moderate	Moderate	None	Never	2	Elec	Daily	July '50-Apr '52
30-40 yr shortleaf, 6	Shortleaf pine	Undisturbed	34°36'	81°41'	500	IV B2	Level	U upper slope	Level	Moderate	Moderate	None	Never	2	Elec	Daily	July '50-Dec '51
40-50 yr shortleaf, 7	Shortleaf pine	Undisturbed	34°36'	81°40'	500	IV B2	NW	U upper slope	4	Moderate	Moderate	None	Never	2	Elec	Daily	Aug '50-Apr '52
Missouri																	
Poplar Bluff, Butler Co.																	
Weldon, Forest	Pole size oa -hickory forest	Undisturbed	36°54'	90°19'	500	III A	SW	U ridge	5	Good	Moderate	None	Never	2	Elec	Daily	Dec '52-Dec '54
Weldon, Bare	Bare	Bare	36°54'	90°19'	500	III A	SW	U ridge	5	Good	Moderate	None	Never	2	Elec	Daily	Dec '52-Dec '54
Illinois																	
Robbs, Pope Co.																	
Grantsburg	Planted shortleaf pine	Undisturbed	37°27'	88°36'	550	III A	SW	U upper slope	4	Good	Moderate	None	Never	2	Elec	3/week	Mar '54-Feb '55
Pennsylvania																	
Dilldown, Monroe Co.																	
Pimple Hill, 3	Scrub oak 3-4 ft high with shrub understory	Undisturbed	40°01'	75°32'	2,000	IV A5	W	U upper slope	16	Good	Good	None	Never	2	Elec	2/week	Oct '49-June '52**
Old Farm, 4	Scrub oak 3-4 ft high with shrub understory	Undisturbed	40°01'	75°33'	1,870	IV A5	Level	U flat	Level	Good	Good	None	Never	2	Elec	2/week	Oct '49-June '52**
Quarry Road, 8	Scrub oak 3-4 ft	Undisturbed	40°02'	75°34'	1,710	IV A5	N	U upper slope	5	Good	Good	None	Never	2	Elec	2/week	Oct '49-June '52**
Maine																	
Old Town, Penobscot Co.																	
Young Pine	Young, thinned, white pine. No understory	Undisturbed	44°56'	68°39'	170	I D3	Level	U flat	Level	Poor	Poor	None	Never	2	Grav	Daily	May '55-Sept '55
Mature Pine	Mature white pine with spruce-fir understory	Undisturbed	44°56'	68°39'	170	I D3	Level	U flat	Level	Poor	Poor	None	Never	2	Grav	Daily	May '55-Sept '55
Fir-Cedar	Young fir & cedar with scattered white pine	Undisturbed	44°56'	68°39'	170	I D3	Level	U flat	Level	Poor	Poor	Perched	Wet season	4	Grav	Daily	May '55-Sept '55
Wisconsin																	
Rhinelander, Oneida Co.																	
Sortek, Bare	Bare	Bare	45°40'	89°48'	1,500	I D2b	Level	U flat	Level	Moderate	Poor	Perched	Wet season	4	Grav	1/week	May '53-Nov '53
Sortek, Herb.	Herbaceous	Hay	45°40'	89°48'	1,500	I D2b	Level	U flat	Level	Moderate	Poor	Perched	Wet season	4	Elec	Daily	May '53-Dec '53
Sortek, Forest	40 to 50-yr aspen forest	Undisturbed	45°40'	89°48'	1,500	I D2b	Level	U flat	Level	Moderate	Poor	Perched	Wet season	4	Elec	Daily	May '53-Dec '53
Eagen, Low	Jack pine, scattered aspen	Undisturbed	45°40'	89°48'	1,450	I D2c	N	U lower slope	4	Moderate	Poor	Permanent	Wet season	4	Elec	Daily	May '53-Dec '53
Eagen, Slope	Jack pine, scattered aspen	Undisturbed	45°40'	89°48'	1,465	I D2c	N	U upper slope	9	Good	Good	None	Never	2	Grav	1/week	May '53-Nov '53
Eagen, Peat	Black spruce & tamarack	Undisturbed	45°40'	89°48'	1,445	V C2	Level	B depression	Level	Poor	Poor	Permanent	All year	4	Grav	1/month	May '53-Oct '53
Peat Swamp	Dwarf tamarack & black spruce with spaghnum moss	Undisturbed	45°40'	89°48'	1,510	V C2	Level	B depression	Level	Poor	Poor	Permanent	All year	4	Grav	1/month	May '53-Oct '53

(Continued)

* U = upland, B = bottom land, and T = terrace.
** Period of record covers. 10/17/49 to 12/29/50, 4/2/51 to 12/28/51, and 3/31/52 to 6/25/52.

Table B1 (Continued)

Site	Vegetation	Land Use	Latitude	Longitude	Elevation ft	Land Form	Aspect	Position*	Slope %	Surface	Internal	Type	Time of Influence	Index	Method	Frequency	Period of Record
	..., scattered aspen	Undisturbed						U lower slope	4	Moderate	Poor	Permanent	Wet season	4	Elec	Daily	May '53-Dec '53
Eagen, Peat	Black spruce & tamarack	Undisturbed	45°40'	89°48'	1,465	I D2c	N	U upper slope	9	Good	Good	None	Never	2	Grav	1/week	May '53-Nov '53
Peat Swamp	Dwarf tamarack & black spruce with sphagnum moss	Undisturbed	45°40'	89°48'	1,445	V C2	Level	B depression	Level	Poor	Poor	Permanent	All year	4	Grav	1/month	May '53-Oct '53
			45°40'	89°48'	1,510	V C2	Level	B depression	Level	Poor	Poor	Permanent	All year	4	Grav	1/month	May '53-Oct '53

(Continued)

* U = upland; B = bottom land; and T = terrace.
** Period of record covers: 10/17/49 to 12/29/50, 4/2/51 to 12/28/51, and 3/31/52 to 6/25/52.

Table B1 (Continued)

Site	Vegetation	Land Use	Latitude	Longitude	Elevation ft	Fm Conf. Land Form	Aspect	Topography: Position*	Slope %	Drainage: Surface	Drainage: Internal	Ground Water Table: Type	Time of Influence	Index	Moisture Measurement: Method	Frequency	Period of Record
Wisconsin (Continued)																	
Rhinelander, Oneida Co., (Continued)																	
Timber Lake	Herbaceous	Undisturbed	45°40'	89°48'	1,540	I D2c	E	U upper slope	4	Good	Good	None	Never	2	Elec**	Daily	May '53-Dec '53
Peterson	Herbaceous	Hay	45°40'	89°48'	1,550	I D2b	Level	U flat	Level	Moderate	Good	None	Never	2	Elec**	Daily	May '53-Dec '53
Oudis	30- to 40-yr aspen forest	Undisturbed	45°40'	89°48'	1,550	I D2b	Level	U flat	Level	Moderate	Good	None	Never	2	Elec**	Daily	May '53-Dec '53
Gross School, Forest	30- to 40-yr aspen forest	Undisturbed	45°40'	89°48'	1,500	I D2b	Level	U flat	Level	Moderate	Poor	None	Never	3	Elec**	Daily	May '53-Dec '53
Gross School, Herbaceous	Herbaceous	Undisturbed	45°40'	89°48'	1,500	I D2b	Level	U flat	Level	Moderate	Poor	None	Never	3	Elec**	Daily	May '53-Dec '53
Wet Spencer	Herbaceous	Undisturbed	45°40'	89°48'	1,450	II C3	Level	T depression	Level	Poor	Poor	Permanent	All year	4	Grav	1/month	May '53-Oct '53
Noisy Creek	Herbaceous with scattered willow	Undisturbed	45°40'	89°46'	1,450	V C3	Level	B depression	Level	Poor	Poor	Permanent	All year	4	Grav	1/month	May '53-Oct '53
Montana																	
Miles City, Custer Co.																	
Gumbo	Sparse, herbaceous	Grazed	46°23'	105°54'	2,400	II C1	Level	T flat	Level	Poor	Poor	None	Never	3	Elec	3/week	Apr '54-Aug '54
River	Herbaceous	Grazed	46°23'	105°54'	2,400	II E1	Level	B flat	Level	Poor	Poor	None	Never	3	Elec	3/week	Apr '54-Aug '54
Highway	Herbaceous	Grazed	46°21'	105°55'	2,400	II C1	Level	T flat	Level	Moderate	Good	None	Never	2	Elec	3/week	Apr '54-Aug '54
Idaho																	
Priest River, Bonner Co.																	
Blue Lake	Herbaceous	Hay	48°17'	116°50'	2,300	V C2	Level	U depression	Level	Poor	Poor	Permanent	All year	4	Elec	Daily	July '53-Oct '52 July '53-Aug '53
Burn	15-yr planted ponderosa pine & natural western larch, western white pine & cottonwood	Undisturbed	48°27'	116°56'	2,500	II H	Level	T flat	Level	Good	Good	None	Never	2	Elec	Daily	July '52-Oct '52 May '53-July '53
Timber	200-yr western hemlock, grand fir, & western pine	Undisturbed	48°27'	116°56'	2,500	II B1	Level	T flat	Level	Good	Good	None	Never	2	Elec	Daily	July '52-Oct '52 May '53-July '53
Benton	80-yr western white pine & western larch	Undisturbed	48°21'	116°40'	2,450	II B1	Level	B flat	Level	Moderate	Moderate	Permanent	Wet season	3	Elec	Daily	July '52-Oct '52
Meadow, Herbaceous	Herbaceous	Grazed	48°21	116°50'	2,300	II B1	Level	T flat	Level	Poor	Poor	Permanent	Wet season	4	Elec	Daily	July '52-Oct '52 Apr '53-July '53
Meadow, Bare	Bare	Bare	48°21'	116°50'	2,300	II B1	Level	T flat	Level	Poor	Poor	Permanent	Wet season	4	Elec	Daily	July '52-Oct '52
Washington																	
Rockford, Spokane Co.																	
Couse, Pine	30-yr ponderosa pine	Undisturbed	47°27'	117°05'	2,650	III A	S	U upper slope	10	Good	Poor	None	Never	3	Elec	3/week	Feb '54-Dec '54
Couse, Wheat	Fall wheat	Cultivated	47°27'	117°06'	2,600	III A	S	U upper slope	8	Good	Poor	None	Never	2	Elec	3/week	Feb '54-Dec '54
Caldwell	Herbaceous	Pasture & cultivated	47°26'	117°06'	2,450	II B1	Level	B flat	Level	Poor	Moderate	Permanent	Wet season	4	Elec	3/week	Feb '54-Dec '54
Thatuna, Wheat	Winter wheat	Cultivated	47°25'	117°11'	2,600	III A	NW	U upper slope	12	Good	Moderate	None	Never	3	Elec	3/week	Feb '54-Dec '54
Thatuna, Fallow	Fallowed	Cultivated	47°25'	117°11'	2,600	III A	NW	U upper slope	12	Good	Moderate	None	Never	3	Elec	3/week	Feb '54-Dec '54
California																	
Tanbark Flat, Los Angeles Co.																	
Tanbark, Chaparral	Ceanothus scrub oak & mountain mahogany	Undisturbed	34°12'	117°45'	2,800	IV B2	E	U upper slope	35	Good	Good	None	Never	2	Grav	Weekly	Sept '41-Nov '43
Tanbark, Bare	Bare	Bare	34°12'	117°45'	2,800	IV B2	S	U ridge	20	Good	Good	None	Never	2	Elec	Weekly	Sept '41-Nov '43
Sunflower	Sunflower	Experimental plot	34°12'	117°45'	2,800	IV B2	Level	U flat	Level	Good	Good	None	Never	2	Elec	4/week	Jan '49-Dec '49
Unconfined Lysimeter A	Calif shrub buckwheat, planted 1946	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Good	None	Never	2	Elec	3/week	Nov '52-Apr '55
Unconfined Lysimeter B	Chamise	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Good	None	Never	2	Elec	3/week	Nov '52-Apr '55
Unconfined Lysimeter C	Hoaryleaf ceanothus	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Good	None	Never	2	Elec	3/week	Nov '52-Apr '55
Unconfined Lysimeter D	Calif. scrub oak	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Good	None	Never	2	Elec	3/week	Oct '51-Apr '55
Unconfined Lysimeter E	Coulter pine	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Good	None	Never	2	Elec	3/week	Oct '51-Apr '55
Confined Lysimeter 1	Bare	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Moderate	Perched	Rarely	3	Elec	3/week	Apr '52-Apr '55
Confined Lysimeter 3	Bunch grass, planted 1951	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Moderate	Perched	Rarely	3	Elec	3/week	Apr '52-Apr '55
Confined Lysimeter 5	Calif. shrub buckwheat, planted 1951	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Moderate	Perched	Rarely	3	Elec	3/week	Apr '52-Apr '55
Confined Lysimeter 9	Chamise	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Moderate	Perched	Rarely	3	Elec	3/week	Apr '52-Apr '55
Confined Lysimeter 19	Scrub oak	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Moderate	Perched	Rarely	3	Elec	3/week	Nov '52-Apr '55
Confined Lysimeter 24	Coulter pine	Experimental plot	34°12'	117°45'	2,800	IV B2	S	U flat	5	Good	Moderate	Perched	Rarely	3	Elec	3/week	Oct '51-Apr '55

(Continued)

* U = upland; B = bottom land; and T = terrace.
** Remote electrical resistance readings.

Table B1 (Continued)

Site	Vegetation	Land Use	Latitude	Longitude	Elevation ft	Eng. Conf. Land Form	Aspect	Topography: Position*	Topography: Slope %	Drainage: Surface	Drainage: Internal	Ground Water Table: Type	Ground Water Table: Time of Influence	Index	Moisture Measurement: Method	Moisture Measurement: Frequency	Moisture Measurement: Period of Record
California (Continued)																	
North Fork, Madera Co.																	
North Fork, Forest	Woodland chaparral, digger pine & Calif. black oak	Undisturbed	37°14'	119°30'	2,750	IV B2	W	U upper slope	32	Good	Good	None	Never	2	Grav	2/month	Sept '38-Aug '40
North Fork, Bare	Bare	Bare	37°14'	119°30'	2,750	IV B2	W	U upper slope	32	Good	Good	None	Never	2	Grav	2/month	Sept '38-Aug '40
Bass Lake, Forest	70- to 80-yr ponderosa pine	Undisturbed	37°18'	119°32'	3,350	IV B2	N	U upper slope	40	Good	Good	None	Never	2	Grav	2/month	Oct '41-Sept '43
Bass Lake, Bare	Bare	Bare	37°18'	119°32'	3,350	IV B2	N	U upper slope	40	Good	Good	None	Never	2	Grav	2/month	Oct '41-Sept '43
Colorado																	
Grand Junction, Mesa Co.																	
East Grand Mesa, Herb.	Herbaceous	Undisturbed	39°02'	108°06'	10,460	I D2b	W	U upper slope	7	Good	Good	None	Never	2	Elec	5/week	June '53-Oct '53 May '54-June '54
East Grand Mesa, Bare	Bare	Bare	39°02'	108°06'	10,460	I D2b	W	U upper slope	7	Good	Good	None	Never	2	Elec	5/week	July '53-Oct '53 May '54-June '54
West Grand Mesa, Herb.	Herbaceous	Undisturbed	39°03'	108°12'	10,000	IV B1	N	U ridge	4	Good	Good	None	Never	2	Elec	5/week	June '53-Oct '53 May '54-June '54
West Grand Mesa, Bare	Bare	Bare	39°03'	108°12'	10,000	IV B1	N	U ridge	4	Good	Good	None	Never	2	Elec	5/week	June '53-Oct '53 May '54-June '54
Spruce	Spruce with herbaceous understory	Grazed	39°03'	108°12'	10,000	IV B1	W	U upper slope	4	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53
Bog	Herbaceous	Grazed	39°02'	108°06'	10,430	I D2b	Level	U depression	Level	Poor	Poor	None	Never	4	Grav	2/week	June '52-Oct '53
Aspen, 1	Aspen with herbaceous understory	Undisturbed	39°01'	107°57'	8,900	V F	W	T lower slope	8	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53 Apr '54-June '54
Oakbrush, 1	Low scrub oak with herbaceous & shrub understory	Undisturbed	39°00'	108°14'	8,000	IV B1	NW	U upper slope	20	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53 Apr '54-June '54
Pinon-Juniper	Pinon pine & Utah juniper with herbaceous understory	Undisturbed	39°00'	108°15'	7,000	II C1	Level	T lower slope	Level	Good	Good	None	Never	2	Grav	2/week	June '53-June '54
Cedaredge, Delta Co.																	
Aspen, 3	Aspen with herbaceous understory	Grazed	39°02'	107°57'	9,700	IV A2	SW	U lower slope	10	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53 May '54-June '54
Aspen, 2	Aspen with herbaceous understory	Grazed	39°01'	107°57'	9,200	IV A2	S	U upper slope	20	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53 Apr '54-June '54
Aspen, Bare	Bare	Bare	39°01'	107°57'	9,200	IV A2	S	U upper slope	20	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53 Apr '54-June '54
Oakbrush, 2	Low scrub oak with shrub understory	Grazed	39°00'	107°57'	8,700	IV A2	S	U lower slope	8	Good	Good	None	Never	2	Grav	2/week	June '52-Oct '53 Apr '54-June '54
Oakbrush, Bare	Bare	Bare	39°00'	107°57'	8,700	IV A2	S	U upper slope	8	Good	Good	None	Never	2	Grav	2/week	June '53-Oct '53 Apr '54-June '54
Delta City & Co.																	
Escalante, Herbaceous	Herbaceous sparse desert	Undisturbed	38°46'	108°15'	5,250	II F	S	T lower slope	4	Good	Moderate	None	Never	1	Grav	2/week	June '53-May '54
Escalante, Bare	Bare	Bare	38°46'	108°15'	5,250	II F	S	T lower slope	4	Good	Moderate	None	Never	1	Grav	2/week	June '53-May '54
Badlands	Bare	Undisturbed	38°49'	108°00'	5,150	IV A2	S	U ridge	10	Good	Moderate	None	Never	0	Grav	2/week	June '53-May '54
New Mexico																	
Albuquerque, Bernalillo Co.																	
Pine Flat, Herbaceous	Herbaceous	Grazed	35°01'	106°20'	7,340	IV A1	NW	U upper slope	5	Good	Good	None	Never	2	Elec	3/week	May '53-Apr '54
Pine Flat, Forest	Pinon pine forest	Grazed	35°01'	106°20'	7,340	IV A1	NW	U upper slope	5	Good	Good	None	Never	2	Elec	3/week	May '53-Apr '54
Pine Flat, Bare	Bare	Bare	35°01'	106°20'	7,340	IV A1	NW	U upper slope	5	Good	Good	None	Never	2	Elec	3/week	May '53-Apr '54
San Antonito, Herbaceous	Herbaceous	Grazed	35°10'	106°20'	6,750	IV A5	SE	U lower slope	6	Good	Good	None	Never	1	Elec	2/week	May '53-Apr '54
Sandia Mesa, Herbaceous	Herbaceous	Grazed	35°03'	106°34'	5,180	II C1	Level	T flat	Level	Good	Moderate	None	Never	1	Grav	2/week	May '53-Apr '54
Flood Plain	Herbaceous	Grazed	35°14'	106°34'	5,000	II B1	Level	B flat	Level	Poor	Poor	None	Never	2	Elec	2/week	May '53-Apr '54
Sandoval Co.																	
Jemez Dam	Herbaceous sparse desert	Grazed	35°31'	106°36'	5,385	IV B1	E	U upper slope	7	Good	Good	None	Never	1	Elec	2/week	May '53-Apr '54
Alaska																	
Fairbanks																	
Spruce, 1	White spruce	Undisturbed	64°52'	147°41'	440	II B1	Level	B flat	Level	Poor	Poor	Permanent	Wet season	4	Elec	5/week	May '54-Sept '54
Birch Hill, Forest, 2F	Aspen	Undisturbed	64°52'	147°40'	500	IV B2	S	U upper slope	32	Good	Moderate	None	Never	1	Elec	5/week	May '54-Sept '54
Birch Hill, Herb., 2H	Grasses & weeds	Cultivated (idle)	64°52'	147°40'	500	IV B2	S	U upper slope	32	Good	Moderate	None	Never	1	Elec	5/week	May '54-Sept '54
Steele Creek, Herb., 4H	Grasses & shrubs	Cultivated (idle)	64°54'	147°35'	1,050	III A	E	U ridge	6	Good	Good	None	Never	2	Elec	5/week	May '54-Sept '54
Steele Creek, Forest, 4F	Alder-aspen	Undisturbed	64°54'	147°35'	1,050	III A	Level	U ridge	Level	Good	Good	None	Never	2	Elec	5/week	May '54-Sept '54

(Continued)

* U = upland, B = bottom land, and T = terrace

Table B1 (Continued)

Site	Vegetation	Land Use	Latitude	Longitude	Elevation ft	Eng Conf Land Form	Aspect	Topography: Position*	Topography: Slope %	Drainage: Surface	Drainage: Internal	Ground Water Table: Type	Ground Water Table: Time of Influence	Wetness Index	Moisture Measurement: Method	Moisture Measurement: Frequency	Moisture Measurement: Period of Record
Alaska (Continued)																	
Fairbanks (Continued)																	
Birch-Spruce, 6	White birch & white spruce	Undisturbed	64°53'	147°40'	540	V F	Level	Terrace flat	Level	Poor	Poor	Permanent	All year	4	Elec	5/week	May '54-Sept '54
Birch-Willow, 7	Willow & birch	Undisturbed	64°54'	147°46'	730	III A	NE	U lower slope	18	Good	Good	None	Never	2	Elec	5/week	May '54-Sept '54
Golf Course, Forest, 8F	Aspen	Undisturbed	64°53'	147°49'	525	V F	Level	T flat	Level	Moderate	Moderate	None	Never	2	Elec	5/week	May '54-Sept '54
Golf Course, Herb., 8H	Grasses & weeds	Cultivated (idle)	64°52'	147°49'	525	V F	Level	T flat	Level	Moderate	Moderate	None	Never	2	Elec	5/week	May '54-Sept '54
Exp. Farm, Forest, 9F	Alder, willow, birch, & spruce	Undisturbed	64°51'	147°51'	440	II Bl	Level	B flat	Level	Poor	Poor	Permanent	All year	4	Elec	5/week	May '54-Sept '54
Exp. Farm, Herb., 9H	Grasses	Cultivated (grazed)	64°51'	147°51'	440	II Bl	Level	B flat	Level	Poor	Poor	Permanent	All year	3	Elec	5/week	May '54-Sept '54
University Hill, 10	Aspen	Undisturbed	64°51'	147°49'	500	III A	S	U lower slope	18	Good	Good	None	Never	2	Elec	5/week	May '54-Sept '54
Dairy, 12	Grasses & weeds	Cultivated (grazed)	64°52'	147°44'	440	II Bl	Level	B flat	Level	Poor	Poor	Permanent	All year	3	Elec	5/week	May '54-Sept '54

* U = upland; B = bottom land; and T = terrace.

APPENDIX C: SOIL PROPERTIES

1. Table C1 lists the properties of the soils at each prediction site. Of greatest importance are those characteristics that affect the capacity of the soil to hold water. Detailed records of soil moisture at the study areas are available upon request.

2. The column headed U. S. Department of Agriculture (USDA) Texture Class in table C1 follows the usual department terminology with symbols as follows:

S = sand	C = clay
Si = silt	L = loam

3. The mechanical composition was determined at the Waterways Experiment Station by a combination of the sieve and the hydrometer method.* The figures are expressed in per cent of dry weight.

4. The percentage of "fines" as determined using the Unified Soil Classification System (USCS)** is also given.

5. Plasticity determinations were made in the soils laboratory of the Waterways Experiment Station. The plasticity constants (LL, liquid limit; PL, plastic limit; and PI, plasticity index) are expressed as moisture content, per cent of dry weight, and were determined from bulk samples of the 0- to 6-in. and 6- to 12-in. layers by the Atterberg technique.* This technique has been standardized as to procedure and equipment. However, liquid limit tests for some soils with low plasticity, such as sands and sandy loams, cannot be run with the standard procedure because these types of materials do not have sufficient adhesion to prevent slippage of the prepared samples in the cup before the material flows. For such soils, the standard grooving tool was modified

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* ASTM Standards, published by the American Society for Testing Materials, Philadelphia, Pa., 1955.

** Corps of Engineers, Waterways Experiment Station, The Unified Soil Classification System, Technical Memorandum 3-357, Vicksburg, Miss. (March 1953).

to make tests of them possible.* In table C1 under liquid limit: NV indicates that no values were obtained using the standard test and that additional sample was not available to run the modified test; a blank means that no test was run; and those values marked with an asterisk were obtained by use of the modified tool.

6. Organic matter determinations were made by a modified Walkley, rapid, dichromate oxidation method** at the Mississippi Agricultural Experiment Station and are expressed as per cent of dry weight. The loss-on-ignition method following modified procedures of the Association of Agricultural Chemists† was used for samples when the organic content was over 5 per cent as determined by the Walkley method.

7. Bulk densities, in grams per cubic centimeter, usually were determined from 2-in. cores obtained with the San Dimas or drive-type sampler when the soil was moist.†† The cores were taken in duplicate at the 0- to 3-in., 3- to 6-in., 6- to 9-in., and 9- to 12-in. depths and averaged by 6-in. layers. In some cases bulk densities were determined by removing blocks of soil cut to a known volume and determining dry weight of the soil.

8. The theoretical-maximum moisture content (100 per cent saturation) was computed from the measured bulk density and specific gravity which, when not determined, was assumed to be 2.60 for the 0- to 6-in. layer and 2.65 for the 6- to 12-in. layer. The moisture held by the soil at 0.005 and 0.060 atm was determined from 2-in. cores by use of a

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* Liquid limits measured for some samples of low plasticity both by standard procedures and by the modified procedures show very close agreement. Although sufficient research to positively establish the validity of the modified procedure has not been done, it is believed that the liquid limit results obtained are sufficiently accurate for the purposes here.

** Michael Peech et al., Methods of Soil Analysis for Soil-fertility Investigations, U. S. Department of Agriculture Circular No. 757 (1947).

† Association of Agricultural Chemists, Inc., Official Methods of Analyses, 8th ed, Washington, D. C. (1955).

†† W. M. Broadfoot, Procedures and Equipment for Determining Soil Bulk Density, Occasional Paper 135, New Orleans, La., Southern Forest Experiment Station (1954), pp 2-11.

tension table.* The 15-atm values were determined with the pressure membrane cells 1 cm deep using sieved soil.** All these values are expressed as per cent of dry weight of soil.

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* R. W. Leamer and B. Shaw, "A simple apparatus for measuring non-capillary porosity on an extensive scale," Jour., Am. Soc. Agron., vol 33 (1941), p 1003.

** L. A. Richards, "A pressure-membrane extraction apparatus for soil solution," Soil Sci., vol 51 (1941), p 377.

Table C1

Soil Properties

Site	Soil Series	Depths Sampled in.	USDA Texture Class	Mechanical Analysis by Weight, %: Sand 0.05 to 2.00 mm	Silt 0.002 to 0.05 mm	Clay 0.002 mm and Smaller	Organic Matter %	USCS Fines Smaller than 0.074 mm, %	Plasticity Constants by Weight, %: Liquid Limit	Plastic Limit	Plasticity Index	USCS Class	Bulk Density g/cc	Per Cent Soil Moisture at Pressures of: 0.005 atm	0.060 atm	15 atm
Mississippi (incl Mound, La.)																
Vicksburg, Warren Co.																
Park	Loring	0-6	SiL	8	74	18	1.60	96	32	25	7	ML	1.30	36.3	31.1	9.0
		6-12	SiL	6	75	19	0.84	98	28	23	5	ML	1.36	32.7	27.1	6.2
Rifle (both sites)	Collins	0-6	SiL	5	78	17	1.71	100	35	28	7	ML	1.35	35.2	32.2	8.1
		6-12	SiL	4	78	18	1.24	100	35	27	8	ML	1.53	34.8	32.3	8.3
Durden	Briensburg	0-6	SiL	0	84	16	1.55	100	40	28	[illegible]	ML	1.27	38.1	36.6	10.4
		6-12	SiL	4	79	17	1.45	96	38	26	12	ML	1.31	35.6	31.8	9.6
Hardwood	Memphis	0-6	SiL	9	80	11	4.05	96	48	37	11	ML	0.98	40.2	36.4	8.3
		6-12	SiL	4	80	16	0.70	100	25	24	1	ML	1.28	30.3	29.1	6.1
Pine	Memphis	0-6	SiL	9	66	25	1.41	94	38	25	13	ML	1.30	34.5	32.0	11.0
		6-12	SiL	6	72	22	0.35	98	36	23	13	CL	1.34	30.5	29.0	10.4
Radiation (all sites)	Memphis	0-6	SiL	11	75	14	0.86	92	30	26	4	ML	1.36	31.4	29.2	6.1
		6-12	SiL	9	71	20	0.46	93	33	23	10	CL	1.48	27.5	26.1	7.9
Mound, Madison Parish, La.																
Mound (both sites)	Commerce	0-6	SiC	5	50	45	1.98	97	57	26	31	CH	1.38	34.1	32.0	21.0
		6-12	SiC	6	49	45	1.82	96	60	25	35	CH	1.38	36.2	34.0	22.0
Laurel, Jones Co.																
Stockman, Upper	Wabee	0-6	SiL	32	62	6	2.46	76	18	Nonplastic		ML	1.34	34.4	28.1	4.0
		6-12	SiL	30	61	9	0.95	77	19	17	2	ML	1.52	29.6	23.2	2.4
Stockman, Lower (both sites)	Stough	0-6	SiL	35	57	8	4.46	74	32	27	5	ML	1.11	48.8	39.1	8.6
		6-12	SiL	30	57	13	0.83	76	24	18	6	CL-ML	1.51	34.3	26.6	6.5
Jefcoate	Savyer	0-6	SiL	28	59	13	2.92	82	29	24	5	ML	1.30	36.1	30.4	6.3
		6-12	SiL	22	55	23	0.88	84	31	18	13	CL	1.38	33.2	26.3	8.2
Clarke Co.																
Eddins	Pachuta	0-6	CL	29	36	35	2.53	72	52	22	30	CH	1.26	33.2	27.3	19.1
		6-12	C	18	36	46	0.80	83	68	23	45	CH	1.25	37.4	34.2	23.3
State College, Oktibbeha Co.																
Vaiden Complex, Herb.	Vaiden	0-6	CL	42	25	33	3.24	67	50	23	27	CH	1.35	41.3	36.1	17.2
		6-12	C	36	24	40	1.77	72	53	23	30	CH	1.39	42.0	37.2	16.3
Vaiden Complex, Bare	Vaiden	0-6			Same as Herb. Site		2.75		Same as Herb. Site				1.47	37.1	34.2	14.4
		6-12			Same as Herb. Site		0.82		Same as Herb. Site				1.50	37.2	35.0	13.4
Oxford, Lafayette Co.																
Providence	Providence	0-6	SiCL	10	60	30	2.42	96	43	25	18	CL	1.26	38.8	33.7	14.1
		6-12	SiCL	6	60	34	0.70	98	47	24	23	CL	1.45	31.4	30.4	15.1
Tippah	Tippah	0-6	SiL	18	66	16	2.06	92	24	22	2	ML	1.38	31.2	27.6	5.4
		6-12	SiL	17	58	25	0.78	91	30	20	10	CL	1.59	24.5	23.0	8.4
Lexington	Lexington	0-6	SiL	16	71	13	1.06	92	24	21	3	ML	1.40	31.1	28.0	3.5
		6-12	SiCL	9	62	29	0.80	96	39	20	19	CL	1.49	28.3	25.6	10.8
Louisiana (excl Mound)																
Alexandria, Rapides Parish																
Savannah	Savannah	0-6	SiL	39	51	10	2.81	68	26	23	3	ML	1.32	37.0	33.9	4.5
		6-12	L	32	48	20	0.62	74	28	18	10	CL	1.50	29.0	26.9	7.4
Caddo	Caddo	0-6	SiL	15	74	11	3.27	88	34	27	7	ML	1.25	33.3	27.4	6.5
		6-12	SiL	7	74	19	1.05	95	NV	Nonplastic		ML	1.43	27.4	23.4	4.0

(Continued)

Table C1 (Continued)

Site	Soil Series	Depths Sampled in.	USDA Texture Class	Mechanical Analysis by Weight, %: Sand 0.05 to 2.00 mm	Silt 0.002 to 0.05 mm	Clay 0.002 mm and Smaller	Organic Matter %	UCCS Fines Smaller than 0.074 mm, %	Plasticity Constants by Weight, %: Liquid Limit	Plastic Limit	Plasticity Index	USCS Class	Bulk Density g/cc	Per Cent Soil Moisture at Pressures of: 0.005 atm	0.060 atm	15 atm
Texas																
Nacogdoches, City & Co.																
Boswell	Boswell	0-6	LFS	77	21	2	2.35	38	2[illegible]*	Nonplastic		SM	1.34	----	----	4.0
		6-12	CL	35	30	35	0.70	75	46	18	28	CL	1.35	----	----	2.3
Sawyer	Sawyer	0-6	L	46	44	10	0.62	68	14	Nonplastic		ML	1.30	28.8	22.3	2.2
		6-12	L	46	44	10	0.62	68	14	Nonplastic		ML	1.39	28.8	22.3	2.2
Ruckabee	Ruckabee	0-6	FSL	60	35	5	0.35	53	16*	Nonplastic		ML	1.17	33.4	23.0	1.7
		6-12	FSL	60	35	5	0.18	53	16*	Nonplastic		ML	1.34	33.4	23.0	1.7
Arkansas																
Crossett, Ashley Co.																
Headquarters, Forest	Leshe	0-6	SiL	25	67	8	1.33	91	26	23	3	ML	1.37	33.8	29.8	5.2
		6-12	SiL	20	68	12	0.55	91	26	20	6	CL-ML	1.46	28.8	26.0	5.4
Headquarters, Bare	Leshe	0-6	SiL	28	64	8	0.78	88	28	22	6	CL-ML	1.37	32.2	29.2	4.8
		6-12	SiL	26	61	13	0.42	90	26	20	6	CL-ML	1.46	29.7	26.5	5.6
Pine-Hardwood	Leshe	0-6	SiL	24	68	8	1.29	92	26	22	4	ML	1.37	31.6	29.4	5.8
		6-12	SiL	19	67	14	0.46	93	27	20	7	CL-ML	1.46	30.0	27.2	5.8
Prairie (both sites)	Scipio	0-6	SiL	12	79	9	1.10	96	29	24	5	ML	1.42	31.3	29.3	5.8
		6-12	SiL	16	73	11	0.78	95	26	22	4	ML	1.42	31.6	29.0	5.9
Brushy Creek	Urbo	0-6	SiL	10	73	17	2.35	96	46	30	16	ML	1.20	40.7	37.0	14.2
		6-12	SiL	8	70	22	1.39	96	37	25	12	ML	1.36	32.0	29.8	10.8
Sandy	Myatt	0-6	SiL	44	51	5	1.83	67	20	Nonplastic		ML	1.44	23.2	21.0	3.6
		6-12	SiL	42	53	5	0.55	68	18	Nonplastic		ML	1.59	19.0	17.2	2.9
Florida																
Marianna, Jackson Co.																
Lakeland, Forest	Lakeland	0-6	S	94	4	2	0.86	6	16*	Nonplastic		SM	1.43	27.4	8.2	1.5
		6-12	S	94	4	2	0.25	7	16*	Nonplastic		SM	1.52	26.0	6.1	1.3
South Carolina																
Union, City & Co.																
Barren-Eroded, 2	Cataula	0-6	C	24	29	47	0.46	78	70	38	32	MH	1.43	----	27.1	19.0
		6-12	C	25	29	46	0.45	77	69	37	32	MH	1.42	----	29.2	20.6
Lloyd, 3	Lloyd	0-6	SL	60	25	15	0.84	43	23	16	7	SM-SC	1.30	----	20.6	5.3
		6-12	C	29	20	51	0.74	72	57	24	33	CH	1.45	----	25.5	14.7
Loblolly, 5	Cataula	0-6	SL	74	14	12	0.49	27	16	Nonplastic		SM	1.42	----	30.3	6.8
		6-12	C	35	23	42	0.62	55	65	28	35	CH	1.45	----	43.1	25.4
30- to 40-yr shortleaf, 6	Cataula	0-6	SL	78	12	10	0.68	25	13*	Nonplastic		SM	1.49	----	----	3.2
		6-12	CL	44	19	37	0.59	60	46	22	24	CL	1.61	----	----	13.3
40- to 50-yr shortleaf, 7	Cataula	0-6	SL	62	24	14	1.78	40	32	22	10	SC	1.34	----	22.3	8.0
		6-12	CL	42	24	34	0.63	60	48	24	24	CL	1.48	----	22.1	16.4
Missouri																
Poplar Bluff, Butler Co.																
Weldon, Forest	Weldon	0-6	SiL	16	76	8	1.39	90	28	24	4	ML	1.20	42.1	32.6	8.0
		6-12	SiL	14	71	15	0.74	90	28	20	8	CL	1.46	33.9	28.1	9.5
Weldon, Bare	Weldon	0-6	Same as forested site				1.98		Same as forested site				1.20	Same as forested site		
		6-12	Same as forested site				0.86		Same as forested site				1.46	Same as forested site		
Illinois																
Hobbs, Pope Co.																
Grantsburg	Grantsburg	0-6	SiL	11	81	8	0.60	97	31	25	6	ML	1.30	39.8	32.2	6.9
		6-12	SiL	10	76	14	0.45	97	32	23	9	ML	1.34	39.7	31.0	7.2

(Continued)

* Modified technique.

Table C1 (Continued)

Site	Soil Series	Depths Sampled in.	USDA Texture Class	Mechanical Analysis by Weight, %: Sand 0.05 to 2.00 mm	Silt 0.002 to 0.05 mm	Clay 0.002 mm and Smaller	Organic Matter %	USCS Fines Smaller than 0.074 mm, %	Plasticity Constants by Weight, %: Liquid Limit	Plastic Limit	Plasticity Index	USCS Class	Bulk Density g/cc	Per Cent Soil Moisture at Pressures of: 0.005 atm	0.060 atm	15 atm
Pennsylvania																
Dilldown, Monroe Co.																
Pimple Hill, 3	Dilldown	0-6	SL	61	33	6	5.58	23**	24*	Nonplastic		GM	1.07	----	24.2	8.0
		6-12	SL	54	33	13	3.20	26	31	Nonplastic		GM	1.03	----	43.1	14.6
Old Farm, 4	Hazelton	0-6	L	42	49	9	4.56	45**	NV	Nonplastic		GM	0.96	----	36.1	14.0
		6-12	L	39	50	11	4.15	47	NV	Nonplastic		GM	1.10	----	36.2	14.1
Quarry Road, 8	Borie	0-6	L	40	42	18	4.34	46**	31	Nonplastic		GM	0.94	----	39.6	12.3
		6-12	L	38	41	21	2.54	48	28	20	8	GC	1.52	----	34.3	12.4
Maine																
Old Town, Penobscot Co.																
Young pine	Burnham	0-6	L	39	39	22	5.12	63	NV	Nonplastic		SM	1.22	49.4	36.9	7.6
		6-12	L	38	40	22	1.88	63	NV	Nonplastic		SM	1.35	39.0	32.1	4.8
Mature pine	Dixmont	0-6	L	49	30	21	5.24	52	NV	Nonplastic		SM	0.95	65.4	44.2	9.0
		6-12	L	36	47	17	2.67	67	NV	Nonplastic		SM	1.22	46.3	33.8	6.6
Fir-Cedar	Biddleford	0-6	L	41	42	17	5.12	62	NV	Nonplastic		SM	0.95	91.9	59.3	8.3
		6-12	L	33	48	19	2.53	69	NV	Nonplastic		SM	1.29	40.7	34.3	5.2
Wisconsin																
Rhinelander, Oneida Co.																
Sortek (both sites)	Spencer	0-6	SiL	28	64	8	2.75	80	30	26	4	ML	1.24	39.6	34.1	10.1
		6-12	SiL	28	66	6	2.08	82	26	22	4	ML	1.27	36.4	32.8	9.6
Sortek, Forest	Spencer	0-6	SiL	24	70	6	5.51	87	40	32	8	ML	0.82	51.1	43.4	13.9
		6-12	SiL	22	72	6	1.88	88	28	24	4	ML	1.10	34.6	3[illegible].8	9.4
Hagen, low	Vilas	0-6	S	88	10	2	2.47	16	24*	Nonplastic		SM	1.36	35.0	22.2	7.2
		6-12	S	91	7	2	1.45	11	15*	Nonplastic		SM	1.52	23.2	11.9	4.0
Hagen, slope	Vilas	0-6	S	89	10	1	1.33	13	18*	Nonplastic		SM	1.18	39.4	25.2	4.3
		6-12	S	93	6	1	0.78	9	14*	Nonplastic		SM	1.43	28.6	13.2	2.3
Hagen, peat	Peat	0-6			Organic				--	--	--	PT	0.18	41.1	23.3	----
		6-12			Organic				--	--	--	PT	0.27	30.3	21.7	----
Peat swamp	Peat	0-6			Organic				--	--	--	PT	0.18	69.1	62.6	15.4
		6-12			Organic							PT	0.22	68.6	63.2	11.2
Timber Lake	Kennan	0-6	LS	83	15	2	2.87	20	15*	Nonplastic		SM	1.51	27.2	22.2	4.4
		6-12	LS	84	15	1	1.69	19	15*	Nonplastic		SM	1.52	25.6	22.6	4.6
Peterson	Antigo	0-6	SiL	34	61	5	2.23	76	26	22	4	ML	1.40	29.0	26.0	6.6
		6-12	SiL	37	57	6	1.10	75	22	19	3	ML	1.40	31.0	27.6	4.6
Gudis	Antigo	0-6	SiL	42	54	4	3.00	64	30	23	7	ML	1.11	39.5	33.7	9.8
		6-12	SiL	48	47	5	0.78	59	20	16	4	CL-ML	1.29	34.1	31.2	6.4
Gross School, Forest	Spencer	0-6	SiL	27	68	5	3.69	80	35	28	7	ML	0.98	43.6	37.9	10.8
		6-12	SiL	25	69	6	1.00	86	25	21	4	CL-ML	1.00	34.3	31.4	6.1
Gross School, Herbaceous	Spencer	0-6	SiL	29	66	5	2.60	81	33	26	7	ML	1.08	35.6	33.1	7.8
		6-12	SiL	26	69	5	1.55	83	26	22	4	ML	1.23	36.5	34.0	10.1
Wet Spencer	unidentified	0-6	SiL	31	65	4	1.95	80	36	28	8	ML	1.24	60.5	56.8	10.0
		6-12	SiL	29	66	5	0.42	82	21	20	1	ML	1.63	25.9	23.9	6.4
Noisy Creek	Peat	0-6			Organic				103	57	46	PT	0.22	152.0	144.0	36.8
		6-12			Organic				63	36	27	PT	0.21	84.3	80.9	21.5

(Continued)

* Modified technique.
** Corrected for stone content, Pimple Hill 50%, Old Farm 30%, Quarry Road 30% by weight.

Table C1 (Continued)

Site	Soil Series	Depths Sampled in.	USDA Texture Class	Mechanical Analysis by Weight, % Sand 0.05 to 2.00 mm	Silt 0.002 to 0.05 mm	Clay 0.002 mm and Smaller	Organic Matter %	USCS Fines Smaller than 0.074 mm, %	Plasticity Constants by Weight, % Liquid Limit	Plastic Limit	Plasticity Index	USCS Class	Bulk Density g/cc	Per Cent Soil Moisture at Pressures of 0.005 atm	0.060 atm	15 atm
Montana																
Miles City, Custer Co.																
Gumbo	Bowdoin	0-6	SiCL	12	52	36	2.35	96	50	22	28	CH	1.24	34.4	32.0	22.2
		6-12	SiCL	10	50	40	1.98	95	52	20	32	CH	1.42	34.1	31.0	24.9
River	Havre	0-6	SiCL	13	54	33	3.27	94	46	22	24	CL	1.34	29.2	26.6	18.0
		6-12	SiCL	14	51	35	2.87	93	47	22	25	CL	1.36	[illegible]	27.0	19.8
Highway	Havre	0-6	SiL	16	57	27	2.23	90	34	20	14	CL	1.32	33.4	28.0	[illegible]
		6-12	SiL	17	62	21	1.65	90	30	20	10	CL	1.34	36.2	30.0	7.6
Idaho																
Priest River, Bonner Co.																
Blue Lake	Mulkilted	0-6			Organic				[illegible]	22	9	PT	0.24	380.0	350.0	66.0
		6-12			Organic				45	27	18	PT	0.15	660.0	619.0	92.0
Burn	Mission or Cabnet	0-6	SiL	18	75	7	3.00	89	50	47	3	ML	0.58	114.0	----	16.0
		6-12	SiL	13	75	12	0.95	94	41	36	5	ML	0.66	84.0	----	----
Timber	Mission or Cabnet	0-6	SiL	22	73	5	2.75	87	53	48	5	MH	0.66	96.0	71.2	16.3
		6-12	SiL	4	85	11	1.20	100	22	20	2	ML	0.70	79.1	61.1	13.6
Benton	Chamokane	0-6	L	38	48	14	3.13	68	49	38	11	ML	0.88	68.4	47.3	14.0
		6-12	SiL	27	53	20	1.25	82	51	31	20	MH	1.06	49.2	37.8	15.6
Meadow (both sides)	Peone	0-6	SiL	15	64	21	3.13	92	43	36	7	ML	0.99	52.0	45.6	14.3
		6-12	SiL	12	65	23	0.70	93	39	31	8	ML	1.12	65.0	58.0	14.2
Washington																
Rockford, Spokane Co.																
Couse, Pine	Couse	0-6	SiL	14	69	17	3.62	94	34	24	10	ML	1.14	40.2	30.6	10.4
		6-12	SiL	14	67	19	2.00	94	33	22	11	CL	1.10	46.4	30.0	11.0
Couse, Wheat	Couse	0-6	SiL	17	68	15	1.93	93	26	25	1	ML	1.25	[illegible]	30.8	6.8
		6-12	SiL	16	66	18	0.95	93	28	21	7	CL-ML	1.28	39.6	28.9	7.6
Caldwell	Caldwell	0-6	SiL	20	67	13	3.13	89	30	Nonplastic		ML	1.26	38.9	32.3	9.4
		6-12	SiL	20	67	13	3.27	88	34	26	8	ML	1.24	46.2	37.5	10.3
Thatuna, Wheat	Thatuna	0-6	SiL	15	70	15	4.85	92	34	25	9	ML	1.08	46.8	32.2	11.0
		6-12	SiL	16	71	13	5.12	94	36	26	10	ML	1.14	51.8	36.2	12.5
Thatuna, Fallow	Thatuna	0-6	SiL	18	68	14	3.27	94	34	27	7	ML	1.08	46.8	32.2	10.8
		6-12	SiL	13	72	15	2.81	95	36	26	10	ML	1.14	51.8	36.2	10.6
California																
Tanbark Flat, Los Angeles Co.																
Tanbark, Chaparral	Vista-Fallbrook	0-6	SL	64	31	5	2.36	45	29	Nonplastic		SM	1.16	----	19.0	7.1
		6-12	SL	65	30	5	0.42	43	21	Nonplastic		SM	1.32	----	17.0	6.3
Tanbark, Bare	Vista-Fallbrook	0-6	SL	60	31	9	----	46	22	Nonplastic		SM	1.50	----	15.5	5.0
		6-12	SL	61	30	9	----	46	27	20	7	SC	1.57	----	14.0	5.0
Sunflower	Vista-Fallbrook	0-6	SL	63	31	6	----	46	28	22	6	SC	1.55	----	18.0	7.1
		6-12	SL	63	31	6	----	46	28	22	6	SC	1.55	----	18.0	7.2
Unconfined Lysimeter A	Vista-Fallbrook	0-6				Same as Sunflower site							1.62	Same as Sunflower site		
		6-12				Same as Sunflower site							1.64	Same as Sunflower site		
Unconfined Lysimeter B	Vista-Fallbrook	0-6				Same as Sunflower site							1.60	Same as Sunflower site		
		6-12				Same as Sunflower site							1.62	Same as Sunflower site		
Unconfined Lysimeter C	Vista-Fallbrook	0-6				Same as Sunflower site							1.54	Same as Sunflower site		
		6-12				Same as Sunflower site							1.55	Same as Sunflower site		
Unconfined Lysimeter D	Vista-Fallbrook	0-6				Same as Sunflower site							1.55	Same as Sunflower site		
		6-12				Same as Sunflower site							1.55	Same as Sunflower site		

(Continued)

Table C. (Continued)

Site	Soil Series	Depths Sampled in.	USDA Texture Class	Mechanical Analysis by Weight, %: Sand 0.05 to 2.00 mm	Silt 0.002 to 0.05 mm	Clay 0.002 mm and Smaller	Organic Matter %	USCS Fines Smaller than 0.074 mm, %	Plasticity Constants by Weight, %: Liquid Limit	Plastic Limit	Plasticity Index	USCS Class	Bulk Density g/cc	Per Cent Soil Moisture at Pressures of: [illegible] atm	[illegible] atm	15 atm
California (Continued)																
Tanbark Flat, Los Angeles Co. (Continued)																
Unconfined Lysimeter E	Vista-Fallbrook	0-6				Same as Sunflower site							1.55	Same as Sunflower site		
		6-12				Same as Sunflower site							1.55	Same as Sunflower site		
Confined Lysimeter 1	Vista-Fallbrook	0-6				Same as Sunflower site							1.57	Same as Sunflower site		
		6-12				Same as Sunflower site							1.57	Same as Sunflower site		
Confined Lysimeter 3	Vista-Fallbrook	0-6				Same as Sunflower site							1.57	Same as Sunflower site		
		6-12				Same as Sunflower site							1.57	Same as Sunflower site		
Confined Lysimeter 5	Vista-Fallbrook	0-6				Same as Sunflower site							1.56	Same as Sunflower site		
		6-12				Same as Sunflower site							1.56	Same as Sunflower site		
Confined Lysimeter 9	Vista-Fallbrook	0-6				Same as Sunflower site							1.58	Same as Sunflower site		
		6-12				Same as Sunflower site							1.58	Same as Sunflower site		
Confined Lysimeter 15	Vista-Fallbrook	0-6				Same as Sunflower site							1.58	Same as Sunflower site		
		6-12				Same as Sunflower site							1.58	Same as Sunflower site		
Confined Lysimeter 24	Vista-Fallbrook	0-6				Same as Sunflower site							1.60	Same as Sunflower site		
		6-12				Same as Sunflower site							1.60	Same as Sunflower site		
North Fork, Madera Co.																
North Fork, Forest	Holland	0-6	SL	65	28	7	2.18	44	24	22	2	SM	1.31	----	18.3	5.1
		6-12	SL	64	26	10	1.50	45	20	18	2	SM	1.31	----	18.4	5.1
North Fork, Bare	Holland	0-6				Same as forested site							1.32	----	17.0	5.0
		6-12				Same as forested site							1.32	----	17.1	5.0
Bass Lake, Forest	Sierra	0-6	L	49	34	17	3.64	56	41	31	10	ML	1.06	----	23.0	8.2
		6-12	SCL	50	28	22	1.08	55	38	24	14	CL	1.06	----	23.1	8.3
Bass Lake, Bare	Sierra	0-6				Same as forested site							1.17	----	24.0	8.0
		6-12				Same as forested site							1.17	----	24.0	8.0
Colorado																
Grand Junction, Mesa Co.																
East Grand Mesa (both sites)	Unclassified	0-6	SiL	19	64	17	4.60	92	42	30	12	ML	0.98	44.4	36.0	11.8
		6-12	SiL	18	66	16	3.66	94	36	26	10	ML	0.98	45.0	37.4	11.2
West Grand Mesa (both sites)	Unclassified	0-6	SiL	22	64	14	5.02	94	51	32	19	MH	0.88	59.6	47.2	16.0
		6-12	SiL	18	64	18	3.96	93	41	26	15	ML	0.97	50.4	39.1	12.2
Spruce	Unclassified	0-6	SiL	18	66	16	5.97	94	54	34	20	MH	0.88	53.9	46.4	18.8
		6-12	SiL	20	61	19	3.13	93	43	26	17	ML	1.08	37.8	34.9	15.6
Bog	Unclassified	0-6	SiL	16	72	12	5.60	98	[illegible]	[illegible]	[illegible]	[illegible]	1.04	54.3	49.4	15.4
		6-12	SiL	12	76	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.98	61.1	55.6	19.0
Aspen, 1	Unclassified	0-6	SiL	20	66	14	5.79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46.6	42.8	13.6
		6-12	SiL	[illegible]	65	15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	49.2	10.1
[illegible], 1	Unclassified	0-6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36.2	11.4
		6-12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.8	9.8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.0
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.0

Table C1 (Continued)

Site	Soil Series	Depths Sampled in.	USDA Texture Class	Mechanical Analysis by Weight, % Sand 0.05 to 2.00 mm	Silt 0.002 to 0.05 mm	Clay 0.002 mm and Smaller	Organic Matter %	USCS Fines Smaller than 0.074 mm, %	Plasticity Constants by Weight, % Liquid Limit	Plastic Limit	Plasticity Index	USCS Class	Bulk Density g/cc	Per Cent Soil Moisture at Pressures of 0.005 atm	0.350 atm	15 atm
Colorado (Continued)																
Delta City & Co.																
Escalante (both sites)	Unclassified	0-6	SiCL	12	50	38	1.45	97	35	18	17	CL	1.32	27.9	27.2	14.9
		6-12	SiCL	10	55	35	0.86	93	36	17	19	CL	1.48	23.9	23.2	15.7
Badlands	Unclassified	0-6	SiC	3	42	55	0.51	100	37	19	18	CL	1.43	31.3	25.9	15.9
		6-12	SiC	11	49	40	0.59	99	38	19	19	CL	1.55	24.6	23.2	12.0
New Mexico																
Bernalillo Co.																
Pine Flat (both sites)	Unclassified	0-6	SiL	30	52	18	1.98	89	36	20	16	CL	1.40	30.3	29.0	11.7
		6-12	SiL	22	51	27	1.33	92	46	22	24	CL	1.44	29.9	28.7	17.7
Pine Flat, Forest	Unclassified	0-6	SiL	28	57	15	5.07	86	46	29	17	ML	1.17	42.3	36.4	16.6
		6-12	SiL	24	53	23	3.19	88	44	22	22	CL	1.34	33.9	30.8	14.8
San Antonito, Herbaceous	Unclassified	0-6	L	47	37	16	1.05	79	25	18	7	CL-ML	1.44	28.4	25.4	6.6
		6-12	L	37	40	23	0.95	86	34	17	17	CL	1.45	28.1	25.8	12.0
Sandia Mesa, Herbaceous	Unclassified	0-6	VFSL	62	19	19	0.55	56	23	15	8	CL	1.58	25.6	22.2	8.1
		6-12	SCL	57	23	20	0.51	57	25	15	10	CL	1.65	21.6	19.5	9.4
Flood Plain	Unclassified	0-6	SiC	12	45	43	4.15	94	68	35	33	MH	1.20	44.6	41.6	22.7
		6-12	L	37	40	23	1.93	73	48	22	26	CL	1.52	24.3	23.2	15.6
Sandoval Co.																
Jemez Dam	Unclassified	0-6	FSL	73	17	10	0.55	38	17	16	1	SM	1.63	22.8	19.4	5.8
		6-12	FSL	71	18	11	0.78	42	22	17	5	SM-SC	1.55	23.9	22.0	7.7
Alaska																
Fairbanks																
Spruce, 1	Tanana	0-6	Si	10	82	8	6.04	95	56	Nonplastic		ML	1.02	55.2	47.2	16.2
		6-12	SiL	16	76	8	1.45	88	34	Nonplastic		ML	1.18	49.2	42.4	5.5
Birch Hill, Forest, 2F	Gilmore-Fairbanks	0-6	SiL	19	72	9	2.87	92	37	Nonplastic		ML	0.82	62.8	43.6	10.2
		6-12	L	48	41	11	1.25	85	29	21	8	CL	1.28	32.4	24.0	7.8
Birch Hill, Herbaceous, 2H	Gilmore-Fairbanks	0-6	L	45	48	7	2.23	81	34	Nonplastic		ML	1.20	37.4	30.0	8.2
		6-12	SL	53	36	11	1.65	71	29	Nonplastic		ML	1.30	26.2	16.8	7.9
Steele Creek, Herb., 4H	Gilmore-Fairbanks	0-6	SiL	24	64	12	3.62	95	32	Nonplastic		ML	1.10	53.0	40.9	9.0
		6-12	SiL	18	75	7	0.95	94	24	Nonplastic		ML	1.36	33.4	27.8	5.7
Steele Creek, Forest, 4F	Gilmore-Fairbanks	0-6	SiL	19	66	15	2.60	95	29	Nonplastic		ML	1.00	53.0	40.7	8.6
		6-12	SiL	20	72	8	1.45	95	30	Nonplastic		ML	1.42	44.2	35.2	7.7
Birch-Spruce, 6	Fairbanks	0-6	SiL	23	70	7	3.13	88	30	Nonplastic		ML	1.14	32.0	28.0	7.7
		6-12	SiL	21	72	7	1.45	90	19	Nonplastic		ML	1.51	32.6	28.6	6.5
Birch-Willow, 7	Gilmore-Fairbanks	0-6	SiL	10	78	12	4.15	94	34	Nonplastic		ML	0.97	54.6	44.5	11.0
		6-12	SiL	8	80	12	2.87	94	31	Nonplastic		ML	1.20	34.1	36.0	8.3
Golf Course, Forest, 8F	Fairbanks	0-6	SiL	21	70	9	1.55	87	NV	Nonplastic		ML	1.00	50.0	43.0	----
		6-12	SiL	21	69	10	0.86	89	NV	Nonplastic		ML	1.38	34.0	30.0	----
Golf Course, Herb., 8H	Fairbanks	0-6	SiL	19	71	10	3.41	90	NV	Nonplastic		ML	1.26	36.8	33.2	----
		6-12	SiL	17	73	10	1.65	89	NV	Nonplastic		ML	1.26	41.6	37.4	----
Exp. Farm, Forest, 9F	Tanana	0-6	SiL	17	73	10	5.80	90	42	Nonplastic		ML	1.18	39.6	34.2	14.5
		6-12	SiL	23	68	9	1.33	86	26	Nonplastic		ML	1.46	30.6	27.0	6.9
Exp. Farm, Herbaceous, 9H	Tanana	0-6	SiL	21	69	10	5.12	88	40	35	5	ML	1.12	48.5	41.4	12.2
		6-12	SiL	17	74	9	2.08	92	30	Nonplastic		ML	1.60	29.0	25.0	6.6
University Hill, 10	Gilmore-Fairbanks	0-6	SiL	11	74	15	1.33	93	25	Nonplastic		ML	1.15	41.8	33.0	6.2
		6-12	SiL	16	69	15	0.86	95	33	23	10	CL	1.34	37.1	31.2	7.1
Dairy, 12	Tanana	0-6	SiL	33	60	7	5.56	71	46	Nonplastic		ML	1.08	51.6	46.4	14.0
		6-12	SiL	38	55	7	2.47	86	35	Nonplastic		ML	1.22	40.0	35.0	8.0

APPENDIX D: SOIL STRENGTH DATA

1. Soil strength is expressed in terms of cone index, remolding index, and rating cone index which are defined in Part I of the main report.

2. A definite relationship has been established between moisture content and cone index for each site where data are available. Columns 2-5 in table D1 show data necessary to define the average curve and the limits of the relationships beyond which extrapolation should be made with caution. It should be noted that in some cases cone indexes above 300 are listed. This was necessary for some sites in order to define the limits of the average curves at the low moisture content end.

3. The lowest cone index measured for each site is listed in column 6. This value was not necessarily obtained at the highest moisture content as listed in column 2 which is from the average curves for each site.

4. Columns 7 and 8 contain the data necessary to define the lowest measured rating cone index for each site (column 9). The cone index and remolding index for each site were obtained on the same day and at the same moisture content and do not necessarily correspond to those data listed under columns 3 and 6 since column 9 requires the combination of cone index and remolding index that yields the lowest rating cone index.

Table D1

Soil Strength Data, 6- to 12-in. Depth

Site 1	Limits of Average Cone Index-Moisture Content Curves: Highest Moisture % Dry Wt 2	Lowest Cone Index 3	Lowest Moisture % Dry Wt 4	Highest Cone Index 5	Lowest Measured Cone Index 6	Lowest Measured Cone Index: Cone Index 7	Remolding Index 8	
Mississippi (incl Mound, La.)								
Vicksburg, Warren Co.								
Park	29.0	89	23.6	218	107	111	0.38	
Rifle	28.9	194	25.0	255	144	180	0.48	
Durden	36.3	58	26.0	254	79	89	0.34	
Hardwood	33.0	111	24.6	194	83	110	0.16	
Pine	31.1	118	23.4	252	110	122	0.65	
Radiation	26.8	157	21.1	318	146	148	0.44	
Mound, Madison Parish, La.								
Mound	37.5	94	29.5	192	80	120	0.56	
Laurel, Jones Co.								
Stockman, Upper	20.7	251	15.8	282	233	246	0.18	[illegible]
Stockman, Lower	26.1	116	17.5	271	123	164	0.20	[illegible]
Jefcoate	28.6	78	17.2	222	89	104	0.51	[illegible]
Clarke Co.								
Eddins	44.4	68	30.5	289	78	78	0.93	[illegible]
State College, Oktibbeha Co.								
Vaiden Complex	30.7	126	24.8	216	124	124	1.07	[illegible]
Oxford, Lafayette Co.								
Providence	35.0	109	22.2	148	95	113	0.86	[illegible]
Tippah	25.7	166	20.0	213	149	---	----	---
Lexington	32.0	111	13.6	307	118	---	----	---
Louisiana (excl Mound)								
Alexandria, Rapides Parish								
Savannah	26.0	64	16.4	248	82	82	0.67	[illegible]
Caddo	32.2	96	21.1	308	98	119	0.22	[illegible]
Texas								
Nacogdoches, City & Co.								
Boswell				Insufficient data				
Sawyer				Insufficient data				
Huckabee	12.2	101	5.5	220	111	---	----	---
Arkansas								
Crossett, Ashley Co.								
Headquarters, Forest				No data collected				
Pine-Hardwood	31.7	98	22.5	190	99	99	0.14	[illegible]
Prairie	28.4	123	24.9	211	119	119	0.14	[illegible]
Brushy Creek	39.7	19	25.1	181	50	65	0.34	[illegible]
Sandy	25.2	162	17.2	222	115	---	----	---
Florida								
Marianna, Jackson Co.								
Lakeland, Forest	6.6	191	3.6	260	185	---	----	---
South Carolina								
Union, City & Co.								
Barren-Eroded, 2				No data collected				
Lloyd, 3	23.1	187	18.3	225	167	187	0.59	110
Loblolly, 5	27.5	200	23.0	277	193	193	0.89	[illegible]
30-40 yr shortleaf, 6				No data collected				
40-50 yr shortleaf, 7				No data collected				

(Continued)

Table D1 (Continued)

Site 1	Limits of Average Cone Index-Moisture Content Curves: Highest Moisture % Dry Wt 2	Lowest Cone Index 3	Lowest Moisture % Dry Wt 4	Highest Cone Index 5	Lowest Measured Cone Index 6	Lowest Measured Rating Cone Index: Cone Index 7	Remolding Index 8	Rating Cone Index 9
Missouri								
Poplar Bluff, Butler Co.								
Welton, Forest	29.4	49	20.0	166	60	60	0.60	36
Illinois								
Robbs, Pope Co.								
Grantsburg	33.6	48	22.3	194	64	68	0.32	22
Pennsylvania								
Dilldown, Monroe Co.								
Pimple Hill				No data collected				
Old Farm				No data collected				
Quarry Road				No data collected				
Maine								
Old Town, Penobscot Co.								
Young Pine				No data collected				
Mature Pine				No data collected				
Fir-Cedar				No data collected				
Wisconsin								
Rhinelander, Oneida Co.								
Sortek, Herb.	37.0	110	14.9	307	84	94	0.29	27
Sortek, Forest	35.1	163	10.0	285	125	125	0.25	31
Hagen, Low	25.7	159	3.9	218	133	---	----	---
Hagen, Slope	13.6	130	4.3	292	93	---	----	---
Hagen, Peat				Insufficient data				
Peat, Swamp				Insufficient data				
Timber Lake	19.0	185	7.3	255	189	---	----	---
Peterson	25.2	189	16.9	312	145	145	0.38	55
Gudis	30.1	125	9.7	300	99	99	0.28	28
Gross School, Forest	32.8	97	12.1	297	104	104	0.23	24
Gross School, Herb.	29.4	137	13.7	300	81	81	0.26	21
Wet Spencer				Insufficient data				
Noisy Creek				Insufficient data				
Montana								
Miles City, Custer Co.								
Gumbo	27.9	158	14.8	258	151	---	----	---
River	27.4	144	20.2	300	129	---	----	---
Highway	25.4	132	12.5	300	126	140	0.60	84
Idaho								
Priest River, Bonner Co.								
Blue Lake	556.5	87	366.7	103	87	87	0.45	39
Burn	69.6	140	43.5	184	119	119	0.51	61
Timber				Insufficient data				
Benton				Insufficient data				
Meadow, Herb.	54.3	89	35.3	150	99	104	0.18	19
Washington								
Rockford, Spokane Co.								
Couse, Pine	33.1	40	22.2	118	44	60	0.24	14
Couse, Wheat	36.3	175	24.9	292	149	149	0.22	33
Caldwell				No data collected				
Thatuna, Wheat	36.9	99	24.3	183	72	72	0.25	18
Thatuna, Fallow				Insufficient data				

(Continued)

Table D1 (Continued)

Site	Limits of Average Cone Index-Moisture Content Curves				Lowest Measured Cone Index	Lowest Measured Rati[...] Cone Index		
	Highest Moisture % Dry Wt	Lowest Cone Index	Lowest Moisture % Dry Wt	Highest Cone Index		Cone Index	Remolding Index	Rati[...] Con[...] Inde[...]
1	2	3	4	5	6	7	8	9
California								
Tanbark Flat, Los Angeles Co.								
Chaparral	18.7	53	4.6	260	59	68	1.67	114
Tanbark, Bare				No data collected				
Sunflower				No data collected				
Lysimeters				No data collected				
North Fork, Madera Co.								
North Fork, Forest				No data collected				
North Fork, Bare				No data collected				
Bass Lake, Forest				No data collected				
Bass Lake, Bare				No data collected				
Colorado								
Grand Junction, Mesa Co.								
East Grand Mesa, Herb.	36.8	67	13.8	166	72	72	0.48	35
West Grand Mesa, Herb.	42.4	40	12.1	276	85	88	0.60	53
Spruce				Insufficient data				
Bog	72.6	154	54.2	182	136	161	0.42	68
Aspen, 1	36.0	113	15.2	254	103	124	0.49	61
Oakbrush, 1	24.8	80	12.4	243	76	79	0.49	39
Pinon-Juniper	37.3	158	15.4	294	112	---	----	---
Cedaredge, Delta Co.								
Aspen, 3	33.3	144	20.9	278	92	92	0.78	72
Aspen, 2	33.4	93	16.2	227	81	96	0.72	69
Oakbrush, 2	34.8	82	17.8	293	92	92	0.58	53
Delta, City & Co.								
Escalante, Herb.	24.3	149	13.1	233	122	122	1.62	198
Badlands	16.0	169	7.3	270	129	129	2.10	271
New Mexico								
Albuquerque, Bernalillo Co.								
Pine Flats	26.3	100	16.1	221	86	86	0.67	58
San Antonio, Herb.	22.3	166	11.4	273	125	125	0.88	110
Sandia Mesa, Herb.	19.0	140	8.6	306	124	131	0.65	85
Flood Plain	28.6	110	14.6	238	117	117	0.78	91
Sandoval Co.								
Jemez Dam	19.0	88	8.4	258	92	125	0.76	95
Alaska								
Fairbanks								
Spruce, 1	31.8	252	6.6	294	232	---	----	---
Birch Hill, 2F	19.4	124	6.8	284	134	---	----	---
Birch Hill, 2H	14.6	222	5.6	288	195	---	----	---
Steele Creek, 4H				Insufficient data				
Steele Creek, 4F	22.3	269	10.9	308	239			
Birch-Spruce, 6	28.7	125	24.5	124	106	130	0.20	26
Birch-Willow, 7	25.3	267	15.1	300	253			
Golf Course, 8F				Insufficient data				
Golf Course, 8H	22.3	249	14.6	307	232			
Exp Farm, 9F	36.2	185	21.9	212	110	110	0.44	48
Exp Farm, 9H	26.8	251	16.0	304	226			
University Hill, 10				Insufficient data				
Dairy, 12				Insufficient data				

APPENDIX E: CLIMATE OF STUDY SITES

1. Precipitation records were obtained at nearly all sites with either a recording or standard rain gage, or both. Air temperature and relative humidity were measured with recording hygrothermographs. The latter two factors were not needed to derive prediction relations at specific sites, but may be of value in correlation of the results. Table E1 lists the average total rainfall and average temperature by three-month periods to give a general idea of the weather for the period of record. Detailed records of rainfall, air and soil temperature, and relative humidity are available upon request. The normal climate, usually determined from a long-time record from a nearby weather station, is also listed by three-month periods for comparison with climate during the period of record. In two instances, normal precipitation and normal temperature listed for the same site or sites are from different weather stations. For the site at Robb, Illinois, normal temperature is from a 59-year period of record at New Burnside station and normal precipitation is from a 16-year period of record at the Glendale Experimental Farm Station. The symbols used under "Climate Category" were established at the Land Form Conference (see appendix B) as follows:

Temperature	Precipitation
A- very cold (tundra)	1- 60+ in. (very humid)
B- cold (5000 degree-days*)	2- 20-60 in. (humid)
C- cool (250 degree-days, 24-in. frost depth)	3- 10-20 in. (transitional)
D- warm (nonfrost)	4- 10 in. (arid)
E- hot (nonfrost)	

Example: Vicksburg sites = D2, warm and humid.

* Degree-days is the total number of degrees below freezing for a period of one year, determined by summing the deviation of the mean daily temperature from 32 F.

2. Dates defining average "Frost-free Period" are generally the last day in spring and the first day in fall when the daily minimum air temperature was 32 F or lower. In very humid climates, 34 F or lower was sometimes used to determine the first and last dates of frost. Normal dates of frost-free periods were obtained from the U. S. Weather Bureau publications or Climate and Man, U. S. Department of Agriculture Yearbook, 1941.

Table E1

Climate of Sites Studied

Site	Climate Category	Years of Record Study Period	Years of Record LT* Avg	December-February Ppt, in. Study Period	December-February Ppt, in. LT Avg	December-February Temp °F Study Period	December-February Temp °F LT Avg	March-May Ppt, in. Study Period	March-May Ppt, in. LT Avg	March-May Temp °F Study Period	March-May Temp °F LT Avg	June-August Ppt, in. Study Period	June-August Ppt, in. LT Avg	June-August Temp °F Study Period	June-August Temp °F LT Avg	September-November Ppt, in. Study Period	September-November Ppt, in. LT Avg	September-November Temp °F Study Period	September-November Temp °F LT Avg	Annual Ppt, in. Study Period	Annual Ppt, in. LT Avg	Annual Temp °F Study Period	Annual Temp °F LT Avg
Mississippi (incl Mound, La.)																							
Vicksburg, Warren Co.																							
Park	D2	1	79	15.60	15.42	54.5	50.3	13.17	15.42	62.1	65.6	6.00	11.25	80.7	80.7	6.98	9.42	65.4	66.7	41.75	51.51	65.7	65.8
Rifle	D2	2	79	15.51	15.42	51.4	50.3	12.15	15.42	62.4	65.6	6.54	4.25	83.4	80.7	7.86	9.42	64.2	66.7	42.06	51.51	65.4	65.8
Durden	D2	1	79	15.21	15.42	51.2	50.3	14.04	15.42	61.3	65.6	2.28	11.25	85.2	80.7	4.52	9.42	63.4	66.7	36.04	51.51	65.3	65.8
Hardwood	D2	1	79	14.25	15.42	49.3	50.3	13.93	15.42	64.8	65.6	1.99	11.25	80.6	80.7	3.72	9.42	60.9	66.7	33.90	51.51	66.4	65.8
Pine	D2	1	79	15.48	15.42	49.3	50.3	12.96	15.42	64.8	65.6	1.88	11.25	80.6	80.7	4.18	9.42	60.9	66.7	34.51	51.51	66.4	65.8
Radiation	D2	2	79	13.50	15.42	50.3	50.3	17.40	15.42	65.0	65.6	5.91	11.25	82.6	80.7	6.36	9.42	66.3	66.7	43.14	51.51	66.1	65.8
Mound, Madison Parish, La.	D2	2	79	14.82	15.42	50.5	50.3	11.97	15.42	61.8	65.6	6.17	11.25	81.8	80.7	6.48	9.42	62.2	66.7	39.57	51.51	64.1	65.8
Laurel, Jones, and Clark Co.	D2	1	51	17.73	16.50	50.9	50.9	21.63	15.54	66.9	65.4	6.90	14.91	82.7	80.3	5.64	9.69	62.9	67.8	51.89	56.62	65.8	66.1
State College, Oktibbeha Co.	D2	4	65	17.90	17.54	46.9	47.0	15.06	16.11	64.0	63.3	12.41	14.33	79.1	80.7	9.08	9.23	65.9	65.3	54.45	57.21	64.0	64.1
Oxford, Lafayette Co.	D2	1	58	12.40	15.28	44.9	44.5	22.48	14.97	63.2	62.2	6.37	12.21	83.3	79.3	6.64	10.84	66.8	63.9	47.89	57.30	64.5	62.5
Louisiana, (excl Mound, La.)																							
Alexandria, Rapides Parish	D2	1	59	8.61	16.10	54.3	51.4	15.33	17.66	67.1	67.5	4.80	12.66	83.5	82.6	7.95	11.95	68.7	68.0	36.69	58.37	66.7	67.4
Texas																							
Nacogdoches City & Co.	D2	3	54	10.56	12.72	51.3	49.5	17.37	14.04	64.7	64.8	7.80	10.02	83.2	80.8	8.13	10.23	66.7	65.8	43.86	47.02	66.3	65.5
Arkansas																							
Crossett, Ashley Co.	D2	1	31	15.13	14.82	50.0	46.0	19.63	13.92	64.0	63.0	8.6	11.90	80.0	81.0	4.17	10.17	67.0	65.0	47.75	50.81	65.0	64.0
Florida																							
Marianna, Jackson Co.	D2	2	3	11.58	12.36	56.3	56.3	11.46	15.51	65.3	65.3	14.51	18.99	81.7	81.7	10.69	10.14	65.7	65.7	48.24	57.00	67.2	67.2
South Carolina																							
Union City & Co.	D2	2	59	10.50	10.48	47.0	43.7	12.15	11.22	61.6	60.7	13.08	14.79	80.2	78.2	5.13	9.12	62.0	62.3	40.86	47.61	62.6	61.2
Columbia	D2	1	67	9.38	9.37	50.1	48.5	13.15	10.24	64.0	63.8	12.80	14.25	81.9	79.9	4.03	7.72	63.3	65.4	39.36	41.58	64.8	64.4
Missouri																							
Poplar Bluff, Butler Co.	D2	2	49	10.38	11.25	39.7	37.3	12.54	13.26	61.3	58.5	4.71	12.24	80.6	77.5	6.24	11.07	61.2	59.8	33.86	47.79	60.7	58.3
Illinois																							
Robbs, Pope Co.	D2	1	16	10.64	11.32	36.9	36.5	10.70	13.03	56.6	56.2	8.33	10.96	79.5	76.7	6.40	10.53	59.4	59.2	36.07	45.84	58.1	57.2
Pennsylvania																							
Dilldown, Monroe Co.	C2	3	5	17.31	9.21	25.6	23.5	18.39	11.02	54.4	42.8	15.98	14.02	65.5	63.8	16.74	12.84	48.5	47.6	68.42	49.43	48.5	44.4
Maine																							
Oldtown, Penobscot Co.	C2	1/4	36	-----	9.03	----	20.1	-----	9.61	----	42.1	8.85	10.12	----	65.8	-----	10.93	----	47.4	-----	39.69	----	43.8
Wisconsin																							
Rhinelander, Oneida Co.	C2	1	50	3.25	3.32	18.1	13.7	9.45	2.77	40.8	39.4	13.44	12.60	64.7	65.1	3.04	7.94	47.3	44.8	29.18	30.54	42.7	40.7
Montana																							
Miles City, Custer Co.	C3	1/2	75	-----	1.34	-----	19.3	1.66*	2.99**	48.2**	51.6**	5.53	5.34	70.6	70.8	-----	2.63	-----	47.2	-----	12.81	----	45.5

(Continued)

* LT = long time.
** The period of record was April and May.

Table E1 (Continued)

Site	Climate Category	Years of Record: Study Period	Years of Record: LT Avg	December-February Ppt, in. Study Period	December-February Ppt, in. LT Avg	December-February Temp °F Study Period	December-February Temp °F LT Avg	March-May Ppt, in. Study Period	March-May Ppt, in. LT Avg	March-May Temp °F Study Period	March-May Temp °F LT Avg	June-August Ppt, in. Study Period	June-August Ppt, in. LT Avg	June-August Temp °F Study Period	June-August Temp °F LT Avg	September-November Ppt, in. Study Period	September-November Ppt, in. LT Avg	September-November Temp °F Study Period	September-November Temp °F LT Avg	Annual Ppt, in. Study Period	Annual Ppt, in. LT Avg	Annual Temp °F Study Period	Annual Temp °F LT Avg
Idaho																							
Priest River, Bonner Co.	C2	1/2	30	----	----	----	----	4.80*	4.01*	46.8*	43.4*	0.50**	1.80**	63.1**	61.7**	0.92†	4.39†	52.8†	43.9†	-----	29.19	----	43.7
Washington																							
Rockford, Spokane Co.	C3	1	62	5.46	6.01	34.1	29.8	3.41	4.67	45.0	46.6	4.70	2.37	60.7	64.7	4.43	5.32	48.9	47.9	18.00	18.37	46.4	47.3
California																							
Tanbark Flat, Los Angeles Co.																							
Chaparral & Tanbark sites	D2	2	17	20.29	16.60	47.6	47.3	8.05	7.69	52.1	53.0	0.39	0.23	69.2	69.0	2.44	3.72	60.8	61.7	31.17	28.24	57.4	57.3
Lysimeters	D2	1	17	12.11	16.60	41.0	47.3	4.25	7.69	49.9	53.0	0.00	0.23	67.3	69.0	4.10	3.72	63.0	61.7	20.46	28.24	55.3	57.3
Madera Co.																							
North Fork sites	D2	2	34	19.23	19.01	44.9	39.2	7.63	9.66	53.0	50.1	0.23	0.38	69.0	68.0	3.72	4.20	51.7	51.3	28.24	33.25	57.3	52.1
Bass Lake sites	D2	2	4	27.59	28.92	36.6	39.2	15.78	12.95	46.6	50.1	0.21	0.36	67.5	68.0	7.27	7.64	51.4	51.3	50.85	49.92	50.5	52.1
Colorado																							
Delta, Mesa, and Delta Co.																							
Mesa sites	C3	1/2	‡	----	‡	----	‡	0.64	‡	----	‡	4.17	‡	51.7	‡	0.52	‡	43.2	‡	----	‡	----	‡
Aspen sites	C3	1/2	‡	----	‡	----	‡	2.81	‡	----	‡	5.61	‡	58.7	‡	0.00	‡	44.5	‡	----	‡	----	‡
Oakbrush sites	C3	1	‡	4.04	‡	25.8	‡	5.09	‡	41.5	‡	4.22	‡	61.4	‡	5.25	‡	45.7	‡	18.60	‡	43.6	‡
Pinon Juniper sites	C3	1	‡	2.22	‡	32.8	‡	1.62	‡	50.4	‡	1.75	‡	73.4	‡	3.83	‡	54.0	‡	9.42	‡	52.6	‡
Desert sites	C4	1	50	0.26	1.61	30.4	28.0	0.77	2.08	51.4	50.8	1.58	2.24	72.4	71.4	2.64	2.31	49.9	50.8	5.25	8.24	51.0	50.2
New Mexico																							
Albuquerque, Bernalillo Co.																							
Pine sites	D3	1	30	1.62	2.76	32.0	31.0	2.82	3.67	44.9	48.5	7.89	5.42	66.1	67.8	2.22	3.63	49.6	49.4	14.55	15.48	48.2	49.0
San Antonito sites	D3	1	30	0.66	2.76	32.4	31.0	1.78	3.67	48.2	48.5	4.98	5.42	69.4	67.8	2.03	3.63	50.7	49.4	9.45	15.48	50.1	49.0
Sandia Mesa sites	D4	1	22	0.50	1.19	39.3	36.4	0.86	1.65	56.8	54.4	1.39	3.14	78.6	74.4	1.16	2.09	59.5	55.9	3.91	8.07	58.6	55.3
Flood Plain sites	D4	1	18	0.68	1.56	37.3	35.6	0.68	2.12	54.0	54.0	1.07	2.88	73.7	72.7	1.34	3.14	54.6	54.2	3.77	9.70	54.9	54.1
Sandoval Co.																							
Jemez Dam sites	D4	1	20	0.68	1.56	36.9	36.4	0.99	2.12	54.9	54.4	1.76	2.88	76.7	74.4	1.42	3.14	57.4	55.9	4.85	9.70	56.5	55.3
Alaska																							
Fairbanks	B3	1/2	49	----	----	----	----	0.77	1.44	29.5	28.6	5.84	5.93	57.8	57.5	1.82†	1.00§	42.7§	44.1§	----	11.85	----	25.8

* The period of record was April and May.
** The period of record was July and August.
† The period of record was September and October.
‡ No long term record available.
§ The period of record was September only.

APPENDIX F: MISCELLANEOUS DATA USED IN SOIL-MOISTURE PREDICTION

1. Table F1 includes data necessary for prediction purposes in addition to the accretion and depletion relations. These data are discussed briefly in the following paragraphs.

Transition Dates

2. Transition dates are used in the prediction methods to denote the periods during which the seasonal depletion curves were used. These dates were determined from the daily records of soil moisture by noting the times during which the rate of soil-moisture loss deviated appreciably from the summer and winter depletion curves.

3. At sites where moisture data were collected for a full year, four dates were determined: the first days of the spring, summer, autumn, and winter periods. At other sites having short-term records, the transition dates are incomplete. The dates varied somewhat when more than a one-year record was used; the figure included in these cases was an average of the observed seasons.

Field Maximum

4. Field maximum is the highest recurring average moisture content measured during the period of record. It was used in determining available storage for the soil layers at each site for the initial accretion analysis and in subsequent predictions, as well as for the maximum limit of the depletion curves.

Field Minimum

5. The field-minimum moisture content is the lowest value of each depletion curve and represents an average of the lowest moisture levels that occurred. The soils of a number of sites did not dry sufficiently

during the period of record for the value necessarily to represent permanent wilting point.

Minimum Storm Size

6. Minimum storm size is the smallest storm which, on the average, caused a positive accretion. For most sites this averaged about 0.10 in., but in some instances where interception of rain by vegetation was greater, it was as high as 0.20 in.

Table F1

Miscellaneous Data Used in Soil Moisture Predictions

Site	Transition Dates, First Day of: Spring	Summer	Autumn	Winter	Inches of Water per 6 in. of Soil: Field Maximum, 0- to 6-in. Depth	Field Maximum, 6- to 12-in. Depth	Field Minimum, 0- to 6-in. Depth	Field Minimum, 6- to 12-in. Depth	Minimum Storm Size in.
Mississippi (incl Mound, La.)									
Vicksburg, Warren Co.									
Park	3/9	5/10	9/22	10/24	2.[illegible]5	2.33	0.56	0.49	0.10
Rifle, Herbaceous	3/10	5/10	9/21	10/24	2.52	2.43	0.56	0.90	0.10
Rifle, Bare	3/10	5/10	9/21	10/24	2.48	2.54	0.81	1.50	0.10
Durden	----	4/23	----	11/9	2.38	2.78	0.74	0.87	0.10
Hardwood	4/4	5/14	10/14	11/8	2.26	2.42	0.48	0.41	0.20
Pine	4/13	6/5	10/1	12/2	2.08	2.19	0.86	0.98	0.20
Radiation, Herbaceous	3/10	5/15	9/21	11/15	2.59	2.35	0.34	0.66	0.10
Radiation, Bare	3/10	5/15	9/21	11/15	2.59	2.35	0.65	0.97	0.10
Radiation, Clipped	3/10	5/15	9/21	11/15	2.59	2.35	0.31	0.80	0.10
Mound, Madison Parish, La.									
Mound, Herbaceous	3/10	5/10	9/22	10/23	2.71	2.95	1.14	1.46	0.10
Mound, Bare	3/10	5/10	9/22	10/23	2.82	2.96	1.44	2.02	0.10
Laurel, Jones Co.									
Stockman, Upper	No transition data				2.48	1.88	0.22	0.50	0.10
Stockman, Lower, Herb.	No transition data				2.54	2.47	0.33	0.42	0.10
Stockman, Lower, Bare	No transition data				2.30	2.37	1.09	1.16	0.10
Jefcoate	No transition data				2.42	2.30	0.51	0.67	0.10
Clarke Co.									
Eddins	No transition data				2.82	3.13	1.21	1.82	0.10
State College, Oktibbeha Co.									
Vaiden Complex, Herb.	3/14	5/2	9/29	11/9	2.94	2.85	1.10	1.15	0.10
Vaiden Complex, Bare	3/14	5/2	9/29	11/9	2.67	2.60	1.10	1.22	0.10
Oxford, Lafayette Co.									
Providence	4/1	6/1	10/15	12/1	2.62	2.82	0.48	0.97	0.10
Tippah	4/1	6/1	10/15	12/1	2.38	2.54	0.47	1.27	0.10
Lexington	4/1	6/1	10/15	12/1	2.66	2.57	0.28	0.66	0.10
Louisiana (excl Mound)									
Alexandria, Rapides Parish									
Savannah	3/17	5/24	----	----	2.52	2.36	----	----	0.10
Caddo	3/17	5/24	----	----	3.11	2.76	----	----	0.10
Texas									
Nacogdoches City & Co.									
Boswell	3/11	6/1	11/1	12/1	2.07	1.89	0.38	0.91	0.10
Sawyer	3/11	6/1	11/1	12/1	1.99	1.64	0.33	0.45	0.10
Huckabee	3/11	6/1	11/1	12/1	1.41	1.56	0.18	0.14	0.10
Arkansas									
Crossett, Ashley Co.									
Headquarters, Forest	3/18	5/10	10/26	12/1	2.64	2.26	0.45	0.53	0.10
Headquarters, Bare	3/18	5/10	10/26	12/1	2.36	2.37	0.74	1.33	0.05
Pine-Hardwood	3/18	5/10	10/26	12/1	2.51	2.43	0.41	0.52	0.10
Prairie, Herbaceous	3/18	5/10	10/26	12/1	2.57	2.45	0.27	0.31	0.05
Prairie, Bare	3/18	5/10	10/26	12/1	2.78	2.54	0.87	0.99	0.05
Brushy Creek	3/18	5/10	10/26	12/1	2.91	2.87	0.74	0.63	0.05
Sandy	3/18	5/10	10/26	12/1	1.[illegible]	1.59	0.23	0.37	0.10
Florida									
Marianna, Jackson Co.									
Lakeland, Forest	----	4/15	----	10/25	0.84	0.86	0.11	0.13	0.10
South Carolina									
Union City & Co.									
Barren-Eroded, 2	3/3	5/14	10/14	11/26	2.41	2.42	1.68	1.82	0.10
Lloyd, 3	3/12	5/15	10/13	11/17	1.78	1.98	0.40	1.06	0.10
Loblolly, 5	3/17	4/20	10/11	11/19	1.52	2.66	0.45	1.65	0.20
30- to 40-yr shortleaf, 6	3/1	4/24	9/17	11/20	1.44	2.07	0.28	1.22	0.15
40- to 50-yr shortleaf, 7	3/15	4/22	9/20	11/26	1.55	2.09	0.50	1.26	0.20
Missouri									
Poplar Bluff, Butler Co.									
Weldon, Forest	4/23	6/1	10/1	12/7	2.07	2.38	0.48	0.64	0.10
Weldon, Bare	4/16	6/1	10/1	12/8	2.30	2.46	0.43	0.40	0.10
Illinois									
Robbs, Pope Co.									
Grantsburg	4/12	6/1	10/1	11/20	2.30	2.36	0.57	0.61	0.10

(Continued)

Table F1 (Continued)

Site	Transition Dates, First Day of: Spring	Summer	Autumn	Winter	Inches of Water per 6 in. of Soil — Field Maximum: 0- to 6-in. Depth	Field Maximum: 6- to 12-in. Depth	Field Minimum: 0- to 6-in. Depth	Field Minimum: 6- to 12-in. Depth	Minimum Storm Size in.
Pennsylvania									
Dilldown, Monroe Co.									
Pimple Hill, 3	5/9	6/15	9/16	11/14	0.87	1.48	0.21	0.92	0.20
Old Farm, 4	5/5	6/12	9/15	11/17	2.14	2.53	1.43	2.01	0.20
Quarry Road, 8	5/8	[illegible]	9/16	11/12	2.32	3.14	1.49	1.96	0.20
Maine									
Old Town, Penobscot Co.									
Young Pine	Soil moisture content too variable for prediction analysis								
Mature Pine	Soil moisture content too variable for prediction analysis								
Fir-Cedar	Soil moisture content too variable for prediction analysis								
Wisconsin									
Rhinelander, Oneida Co.									
Sortek, Bare	Moisture unit record affected by herbicide treatment								
Sortek, Herbaceous	5/10	6/11	10/5	11/24	3.28	2.78	1.62	1.27	0.10
Sortek, Forect	5/10	6/11	10/5	11/24	2.31	1.97	0.64	0.74	0.10
Hagen, Low	5/10	6/11	10/5	11/24	1.47	1.21	0.48	0.53	0.10
Hagen, Slope	Soil moisture content too variable for prediction analysis								
Hagen, Peat	Site remained near saturation during period of study								
Peat Swamp	Site remained near saturation during period of study								
Timber Lake	5/10	6/11	10/5	11/24	1.68	1.32	0.44	0.48	0.10
Peterson	5/10	6/11	10/5	11/24	2.29	1.96	0.50	0.38	0.10
Gudis	5/10	6/11	10/5	11/24	2.62	2.00	1.20	0.84	0.10
Gross School, Forest	5/10	6/11	10/5	11/24	2.77	2.12	0.87	0.67	0.10
Gross School, Herbaceous	5/10	6/11	10/5	11/24	2.97	2.46	1.39	1.13	0.10
Wet Spencer	Soil remained near saturation during period of study								
Noisy Creek	Soil remained near saturation during period of study								
Montana									
Miles City, Custer Co.									
Gumbo	4/6	6/1	----	----	3.23	2.46	1.10	1.22	0.10
River	4/6	6/1	----	----	2.74	2.50	0.74	0.96	0.10
Highway	4/6	6/1	----	----	2.10	2.10	0.55	0.53	0.10
Idaho									
Friest 'iver, Bonner Co.									
Blue Lake	Soil remained near saturation during period of study								
Burn	4/1	6/1	11/1	----	2.69	2.83	0.66	0.76	0.10
Timber	4/1	6/1	11/1	----	2.80	2.78	0.87	0.79	0.10
Benton	4/1	6/1	----	----	2.46	2.47	0.73	0.79	0.10
Meadow, Herbaceous	4/1	6/1	11/1	----	3.45	3.53	1.46	1.53	0.10
Meadow, Bare	4/1	6/1	11/1	----	3.45	3.53	1.46	1.53	0.10
Washington									
Rockford, Spokane Co.									
Couse, Pine	4/1	5/15	9/27	----	2.77	2.88	0.66	0.74	0.10
Couse, Wheat	4/1	5/15	9/27	----	2.64	2.12	0.42	0.79	0.10
Caldwell	4/1	5/15	9/27	----	3.18	3.36	0.53	0.75	0.10
Thatuna, Wheat	4/1	5/15	9/27	----	2.89	3.08	0.66	1.06	0.10
Thatuna, Fallow	4/1	5/15	9/27	----	2.89	3.08	1.28	1.63	0.10
California									
Tanbark Flat, Los Angeles Co.									
Tanbark, Chaparral	----	5/1	----	12/1	1.96	1.56	0.24	0.40	0.15
Tanbark, Bare	----	5/1	----	12/1	1.55	1.78	0.18	0.28	0.10
Sunflower	----	5/1	----	12/1	2.63	2.54	0.69	0.92	0.10
Unconfined Lysimeter A	----	3/31	----	11/30	2.33	2.20	0.48	0.52	0.10
Unconfined Lysimeter B	----	3/31	----	11/30	1.88	1.87	0.47	0.46	0.10
Unconfined Lysimeter C	----	3/31	----	11/30	1.89	1.88	0.43	0.51	0.10
Unconfined Lysimeter D	----	3/31	----	11/30	2.15	2.03	0.53	0.62	0.10
Unconfined Lysimeter E	----	3/31	----	11/30	1.91	1.98	0.34	0.54	0.10
Confined Lysimeter 1	----	3/31	----	11/30	1.98	1.77	0.49	0.82	0.10
Confined Lysimeter 3	----	3/31	----	11/30	2.22	2.10	0.42	0.76	0.10
Confined Lysimeter 5	----	3/31	----	11/30	2.09	2.16	0.34	0.45	0.10
Confined Lysimeter 9	----	3/31	----	11/30	2.17	2.10	0.35	0.41	0.10
Confined Lysimeter 19	----	3/31	----	11/30	1.99	2.01	0.37	0.46	0.10
Confined Lysimeter 24	----	3/31	----	11/30	2.15	2.18	0.36	0.54	0.10
North Fork, Madera Co.									
North Fork, Forest	----	4/9	----	11/11	2.04	1.76	0.19	0.30	0.10
North Fork, Bare	----	4/9	----	11/11	1.53	1.55	0.17	0.45	0.10
Bass Lake, Forest	----	5/16	----	11/26	2.05	1.92	0.43	0.52	0.20
Bass Lake, Bare	----	5/15	----	11/26	2.15	2.20	0.62	0.85	0.20
Colorado									
Grand Junction, Mesa Co.									
East Grand Mesa, Herb.	----	----	9/3	----	2.25	2.10	0.64	0.70	0.10

(Continued)

Table F1 (Continued)

Site	Transition Dates, First Day of: Spring	Summer	Autumn	Winter	Inches of Water per 6 in. of Soil: Field Maximum 0- to 6-in. Depth	Field Maximum 6- to 12-in. Depth	Field Minimum 0- to 6-in. Depth	Field Minimum 6- to 12-in. Depth	Minimum Storm Size in.
Colorado (Continued)									
Grand Junction, Mesa Co. (Continued)									
East Grand Mesa, Bare	----	----	9/3	----	2.16	2.06	0.95	1.26	0.10
West Grand Mesa, Herb.	----	----	9/3	----	2.76	2.53	0.69	0.72	0.10
West Grand Mesa, Bare	----	----	9/3	----	2.67	2.55	0.93	1.52	0.10
Spruce	----	----	9/3	----	3.76	3.46	1.09	1.08	0.10
Bog	----	----	9/3	----	3.55	3.78	1.90	2.34	0.10
Aspen, 1	----	----	9/8	----	3.00	2.09	0.74	0.54	0.10
Oakbrush, 1	----	----	9/10	----	2.21	1.66	0.44	0.46	0.10
Pinon-Juniper	----	----	9/16	11/26	1.94	1.63	0.38	0.66	0.10
Cedaredge, Delta Co.									
Aspen, 3	----	----	9/8	----	2.78	2.39	1.08	1.18	0.10
Aspen, 2	----	----	9/8	----	3.14	2.38	1.17	1.04	0.10
Aspen, Bare	----	----	9/18	----	3.08	2.46	1.50	1.31	0.10
Oakbrush, 2	----	----	9/10	----	2.82	2.20	0.80	0.72	0.10
Oakbrush, Bare	----	----	9/10	----	2.55	2.22	0.73	1.05	0.10
Delta, City & Co.									
Escalante, Herbaceous	3/22	----	9/25	12/5	[illegible]	1.72	0.39	0.58	0.10
Escalante, Bare	3/22	----	9/25	12/5	1.85	1.85	0.36	0.56	0.10
Badlands	3/22	----	9/25	12/5	2.25	1.49	0.38	0.58	0.10
New Mexico									
Albuquerque, Bernalillo Co.									
Pine Flat, Herb.	3/24	6/1	9/15	11/6	2.35	2.13	0.53	0.77	0.10
Pine Flat, Forest	2/24	6/1	9/15	11/6	2.51	2.36	0.76	1.09	0.25
Pine Flat, Bare	3/24	6/1	9/26	11/6	2.35	2.15	1.02	1.42	0.06
San Antonito, Herb.	4/12	6/1	9/21	11/4	1.85	1.95	0.43	0.76	0.10
Sandia Mesa, Herbaceous	3/8	5/13	9/25	11/9	1.54	1.91	0.39	0.37	0.09
Flood Plain	3/18	5/13	9/25	11/16	3.00	2.46	1.44	1.66	0.11
Sandoval Co.									
Jemez Dam	3/20	5/20	9/21	11/5	1.44	2.05	0.39	0.62	0.10
Alaska									
Fairbanks									
Spruce, 1	Soil moisture content too variable for prediction analysis								
Birch Hill, Forest, 2F	----	6/10	9/15	----	2.25	1.72	0.67	0.64	0.10
Birch Hill, Herbaceous, 2H	----	6/3	9/15	----	1.75	1.18	0.65	0.60	0.10
Steele Creek, Herb., 4H	----	6/5	8/29	----	2.70	2.18	1.77	1.42	0.10
Steele Creek, Forest, 4F	----	6/3	9/15	----	2.32	2.33	1.03	0.96	0.10
Birch-Spruce, 6	Soil remained near saturation during period of study								
Birch-Willow, 7	----	----	9/15	----	2.23	2.06	1.08	1.21	0.10
Golf Course, Forest, 8	----	----	9/15	----	1.38	1.53	0.47	0.61	0.10
Golf Course, Herbaceous, 8H	----	6/3	9/8	----	1.90	1.66	1.04	0.97	0.10
Experiment Farm, Forest, 9F	Soil remained near saturation during period of study								
Experiment Farm, Herb., 9H	----	6/3	9/15	----	2.90	2.42	2.18	1.82	0.10
University Hill, 10	----	6/3	9/15	----	1.94	2.26	0.58	0.58	0.10
Dairy, 12	----	6/3	No rec	----	1.92	0.77	0.44	0.45	0.10

APPENDIX G: ACCRETION RELATIONS

1. The equations for Class I and II accretion regressions for the two depths are presented in table G1 for those sites for which information was complete enough to permit derivation of reliable relations. Continuously arid or very wet sites are omitted.

2. In the regression equation, est $Y = bx + a$, Y = accretion, and x = rainfall in Class I and available storage in Class II. Column heading "n" indicates the number of storms used to derive the formula. Column heading "$s_{y \cdot x}$" is the standard error of estimate or standard deviation from regression which indicates the closeness with which new estimated values of accretion may be expected to approximate the true but unknown values. Column heading "s_b" is the standard deviation of the regression coefficient and gives a measure of the random variation of the slope of the regression line about the mean accretion and the mean rainfall or the mean available storage.

Table G1

Accretion Relations

Site	Class I, 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class I, 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II, 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II, 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b
Mississippi (incl Moun , La.)																
Vicksburg, Warren Co																
Park	0.64x - 0.09	37	0.201	0.060	0.37x - 0.09	37	0.071	0.021	0.73x - 0.07	15	0.040	0.091	0.59x - 0.02	15	0.040	0.111
Rifle, Herbaceous	0.70x - 0.04	24	0.175	0.057	0.44x - 0.10	24	0.135	0.047	0.96x - 0.06	31	0.045	0.049	0.76x - 0.02	31	0.022	0.019
Rifle, Bare	0.46x + 0.01	30	0.145	0.101	0.20x - 0.03	30	0.145	0.101	0.84x - 0.03	22	0.119	0.111	0.55x - 0.02	22	0.116	0.245
Durden	0.58x - 0.07	22	0.151	0.110	0.31x - 0.08	22	0.146	0.088	0.72x - 0.03	28	0.066	0.066	0.57x - 0.01	28	0.037	0.050
Hardwood	1.02x - 0.30	13	0.145	0.172	0.38x - 0.08	13	0.140	0.169	0.86x - 0.04	14	0.037	0.055	0.68x - 0.03	13	0.019	0.026
Pine	0.61x - 0.08	23	0.178	0.122	0.33x - [illegible]	23	0.114	0.072	0.46x + 0.03	16	0.039	0.092	0.32x + 0.04	16	0.071	0.077
Radiation, Herbaceous	0.85x - 0.15	36	0.208	0.075	0.18x - [illegible]	38	0.086	0.031	1.02x - 0.26	8	0.061	0.077	0.76x - 0.08	8	0.022	0.026
Radiation, Bare	0.33x - 0.01	35	0.099	0.050	0.18x - 0.05	35	0.056	0.028	0.64x - 0.08	11	0.163	0.156	0.16x + 0.02	11	0.037	0.031
Radiation, Clipped	0.57x - 0.01	32	0.184	0.076	0.17x - 0.03	29	0.051	0.026	0.75x - 0.05	10	0.053	0.071	0.67x - 0.01	10	0.133	0.032
Mound, Madison Parish, La.																
Mound, Herbaceous	0.46x - 0.01	33	0.104	0.040	0.32x - 0.05	33	0.056	0.021	0.79x - 0.03	23	0.062	0.047	0.73x - 0.04	23	0.054	0.040
Mound, Bare	0.54x - 0.04	22	0.310	0.218	0.24x - 0.03	22	0.202	0.142	0.82x - 0.02	20	0.039	0.082	0.40x	24	0.047	0.078
Laurel, Jones Co.																
Stockman, Upper	0.31x + 0.03	13	0.103	0.047	0.17x - 0.03	13	0.080	0.036	0.52x - 0.03	15	0.044	[illegible]	0.87x - 0.07	15	0.036	0.323
Stockman, Lower, Herb.	0.27x + 0.02	16	0.149	0.064	0.14x + 0.01	16	0.036	0.154	0.25x	14	0.033	0.079	0.12x	14	0.026	0.063
Stockman, Lower, Bare	0.27x - 0.02	10	0.033	0.055	0.12x + 0.01	10	0.022	0.037	0.26x	[illegible]	0.026	0.090	0.25x	14	0.020	0.106
Jefcoate	0.31x	17	0.068	0.045	0.21x - 0.04	17	0.048	0.032	0.52x - 0.02	14	0.054	0.038	0.53x - 0.04	14	0.058	0.048
Clarke Co.																
Eddins	0.11x + 0.05	21	0.114	0.058	0.08x	21	0.052	0.027	0.48x - 0.01	10	0.041	0.110	0.11x + 0.03	10	0.026	0.155
State College Oktibbeha Co.																
Vaiden Complex, Herb.	0.38x + 0.07	32	0.174	0.046	0.30x + 0.03	32	0.165	0.046	0.76x - 0.11	5	0.100	0.110	0.80x - 0.15	5	0.117	0.188
Vaiden Complex, Bare	0.39x + 0.01	38	0.178	0.057	0.25x + 0.01	38	0.172	0.054	0.74x - 0.14	11	0.177	0.182	0.85x - 0.12	11	0.116	0.267
Oxford, Lafayette Co.																
Providence	0.46x + 0.08	35	0.206	0.122	0.24x - 0.03	35	0.081	0.043	0.80x - 0.06	13	0.097	0.094	0.42x - 0.07	13	0.068	0.078
Tippah	0.50x - 0.01	33	0.097	0.085	0.40x - 0.08	33	0.048	0.042	1.08x - 0.15	15	0.075	0.063	1.09x - 0.17	15	0.057	0.062
Lexington	0.43x + 0.04	38	0.183	0.091	0.25x - 0.04	38	0.040	0.020	0.81x - 0.04	10	0.228	0.292	0.82x - 0.01	10	0.060	0.092
Louisiana (excl Mound)																
Alexandria, Rapides Parish																
Savannah	0.52x - 0.03 (Est)	--	-----	----	0.46x - 0.05 (Est)	--	-----	-----	0.81x (Est)	--	-----	-----	0.63x (Est)	--	-----	-----
Caddo	0.87x - 0.09 (Est)	--	-----	----	0.69x - 0.07 (Est)	--	-----	-----	0.93x (Est)	--	-----	-----	0.85x (Est)	--	-----	-----
Texas																
Nacogdoches City & Co.																
Bocwell	0.80x - 0.05	25	0.264	0.104	0.33x - 0.06	25	0.064	0.025	1.05x - 0.12	33	0.047	[illegible]	1.01x - 0.13	33	0.024	0.017
Sawyer	0.58x - 0.07	18	0.153	0.053	0.35x - 0.06	18	0.072	0.025	1.01x - 0.11	35	0.069	0.033	0.85x - 0.05	35	0.040	0.024
Huckabee	0.42x - 0.03	63	0.167	0.051	0.35x - 0.10	63	0.114	0.035	0.93x - 0.23	16	0.134	0.133	0.75x - 0.27	16	0.255	0.268
Arkansas																
Crossett, Ashley Co.																
Headquarters, Forest	0.45x + 0.04	19	0.211	0.058	0.16x - 0.07	22	0.072	0.019	0.85x - 0.02	11	0.047	0.046	0.51x - 0.02	13	0.056	0.077
Headquarters, Bare	0.57x - 0.06	25	0.175	0.103	0.06x + 0.01	25	0.023	0.014	0.69x - 0.04	27	0.035	0.036	0.37x - 0.02	21	0.036	0.027

(Continued)

Table G1 (Continued)

Site	Class I 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class I 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b
Headquarters, Bare	0.57x - 0.06	25	0.175	0.103	0.06x + 0.01	22	0.072	0.019	0.85x - 0.02	11	0.047	0.046	0.51x - 0.02	13	0.056	0.077
						25	0.023	0.014	0.69x - 0.04	27	0.035	0.036	0.37x - 0.02	27	0.036	0.027

(Continued)

Table G1 (Continued)

Site	Class I 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class I 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b
Arkansas (Continued)																
Crossett, Ashley Co. (Continued)																
Pine-Hardwood	0.24x + 0.01	34	0.116	0.032	0.21x - 0.05	34	0.083	0.023	0.17x - 0.01	20	0.036	0.004	0.29x + 0.01	20	0.035	0.075
Prairie, Herbaceous	0.23x + 0.06	26	0.195	0.066	0.21x - 0.03	26	0.070	0.024	0.28x + 0.01	24	0.046	0.064	0.54x - 0.03	24	0.042	0.076
Prairie, Bare	0.28x + 0.05	30	0.155	0.064	0.22x - 0.02	30	0.062	0.026	0.26x + 0.03	20	0.079	0.071	0.22x + 0.02	20	0.062	0.067
Brushy Creek	0.44x - 0.03	27	0.077	0.030	0.10x -	26	0.036	0.020	0.66x - 0.03	23	0.029	0.036	0.69x - 0.04	23	0.062	0.060
Sandy	0.40x - 0.06	20	0.072	0.034	0.07x - 0.01	19	0.039	0.028	0.90x - 0.04	23	0.036	0.045	0.59x - 0.07	23	0.069	0.112
Florida																
Marianna, Jackson Co.																
Lakeland, Forest	0.58x - 0.04	49	0.059	0.037	0.22x - 0.01	49	0.070	0.045	0.58x - 0.05	36	0.079	0.085	0.36x - 0.01	36	0.064	0.068
South Carolina																
Union, City & Co.																
Barren-Eroded, 2	0.41x - 0.03	80	0.077	0.041	0.16x - 0.02	80	0.041	0.022	0.79x - 0.12	45	0.073	0.071	0.80x - 0.05	45	0.044	0.063
Lloyd, 3	0.60x - 0.06	78	0.097	0.042	0.29x - 0.06	78	0.077	0.033	0.84x - 0.15	31	0.092	0.079	0.92x - 0.11	31	0.073	0.101
Loblolly, 5	0.58x + 0.01	58	0.182	0.081	0.44x - 0.15	58	0.091	0.040	0.98x - 0.13	26	0.070	0.062	0.64x - 0.04	26	0.049	0.054
30- to 40-yr shortleaf, 6	0.45x - 0.05	52	0.118	0.056	0.29x - 0.07	52	0.088	0.042	0.77x - 0.09	14	0.138	0.121	0.77x - 0.05	14	0.068	0.101
40- to 50-yr shortleaf, 7	0.40x - 0.03	52	0.109	0.061	0.19x - 0.01	52	0.076	0.043	0.69x - 0.05	22	0.042	0.074	0.72x - 0.12	22	0.068	0.152
Missouri																
Poplar Bluff, Butler Co.																
Weldon, Forest	0.60x - 0.03	57	0.161	0.045	0.38x - 0.09	57	0.088	0.025	0.86x - 0.08	30	0.062	0.067	0.82x - 0.06	30	0.042	0.039
Weldon, Bare	0.50x - 0.01	36	0.100	0.049	0.38x - 0.04	36	0.077	0.119	0.94x - 0.04	32	0.053	0.055	0.92x - 0.06	32	0.066	0.083
Illinois																
Robbs, Pope Co.																
Grantsburg	0.48x - 0.06	42	0.144	0.050	0.11x + 0.01	42	0.091	0.032	0.55x - 0.02	8	0.041	0.011	0.32x - 0.02	8	0.076	0.022
Pennsylvania																
Dilldown, Monr																
Pimple Hill	0.44x - 0.09	12	0.043	0.141	0.18x - 0.04	12	0.032	0.105	0.98x - 0.10	25	0.066	0.134	0.50x - 0.06	25	0.057	0.114
Old Farm, 4	0.33x - 0.05	24	0.035	0.048	0.16x - 0.03	24	0.020	0.027	0.71x - 0.03	46	0.050	0.066	0.41x - 0.01	46	0.049	0.082
Quarry Road, 8	0.29x - 0.05	47	0.039	0.024	0.41x - 0.09	47	0.051	0.031	0.65x - 0.03	21	0.152	0.252	0.61x - 0.04	21	0.143	0.163
Maine																
Old Town, Penobscot Co.																
Young Pine	Soil moisture too variable for prediction analysis															
Mature Pine	Soil moisture too variable for prediction analysis															
Fir-Cedar	Soil moisture too variable for prediction analysis															
Wisconsin																
Rhinelander, Oneida Co.																
Sortek, Bare	Moisture unit record affected by herbicide treatment															
Sortek, Herbaceous	0.62x - 0.08	33	0.087	0.063	0.38x - 0.0[illegible]	33	0.063	0.0[illegible]	0.77x - 0.08	6	0.130	0.229	0.74x - 0.02	6	0.063	0.180
Sortek, Forest	0.30x + 0.01	17	0.071	0.078	0.16x - 0.02	31	0.045	0.047	0.7[illegible]x - 0.03	19	0.040	0.147	0.74x - 0.03	19	0.017	0.091

(Continued)

Table G1 (Continued)

Site	Class I								Class II							
	0- to 6-in. Depth				6- to 12-in. Depth				0- to 6-in. Depth				6- to 12-in. Depth			
	Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b
Wisconsin (Continued)																
Rhinelander, Oneida Co. (Continued)																
Hagen, Low	0.68x - 0.09	21	0.100	0.123	0.10x	26	0.046	0.055	0.88x - 0.05	13	0.050	0.081	0.37x - 0.04	13	0.077	0.024
Hagen, Slope					Moisture content too variable for prediction analysis											
Hagen, Peat					Soil remained near saturation during period of study											
Peat Swamp					Soil remained near saturation during period of study											
Timber Lake	0.44x	33	0.134	0.102	0.30x - 0.06	33	0.030	0.024	0.57x - 0.04	7	0.095	0.252	0.75x - 0.03	7	0.029	0.162
Peterson	0.71x - 0.11	33	0.114	0.087	0.31x - 0.05	33	0.055	0.042	0.62x - 0.02	7	0.084	0.256	0.76x - 0.04	7	0.032	0.143
Gudis	0.53x - 0.05	24	0.105	0.107	0.18x - 0.02	24	0.045	0.046	0.86x - 0.08	16	0.045	0.036	0.82x - 0.06	16	0.028	0.079
Gross School, Forest	0.70x - 0.09	25	0.084	0.085	0.27x - 0.04	25	0.026	0.026	0.74x - 0.0,	15	0.033	0.064	0.74x - 0.05	15	0.025	0.078
Gross School, Herbaceous	0.66x - 0.09	30	0.095	0.074	0.36x - 0.06	33	0.032	0.024	0.68x - 0.08	7	0.134	0.237	0.79x - 0.01	7	0.070	0.175
Wet Spencer					Soil remained near saturation during period of study											
Noisy Creek					Soil remained near saturation during period of study											
Montana																
Miles City, Custer Co.																
Gumbo	0.77x - 0.14	18	0.071	0.072	0.26x - 0.06	18	0.113	0.116	----	--	----	----	----	--	----	----
River	0.88x - 0.11	18	0.111	0.066	0.28x - 0.05	18	0.091	0.054	----	--	----	----	----	--	----	----
Highway	0.79x - 0.08	16	0.147	0.148	0.14x - 0.03	16	0.043	0.043	----	--	----	----	----	--	----	----
Idaho																
Priest River, Bonner Co.																
Blue Lake					Soil remained near saturation during period of study											
Burn	0.36x - 0.04	18	0.025	0.031	0.78x - 0.12	18	0.058	0.072	----	--	----	----	----	--	----	----
Timber	0.14x - 0.03	14	0.063	0.215	0.07x + 0.01	14	0.022	0.073	0.42x (Est)	--	----	----	0.50x (Est)	--	----	----
Benton	0.37x - 0.07	4	0.017	0.94	0.38x - 0.02	4	0.009	0.047	0.74x (Est)	--	----	----	0.72x (Est)	--	----	----
Meadow, Herbaceous	0.71x - 0.03	25	0.082	0.116	0.57x - 0.08	25	0.075	0.106	----	--	----	----	----	--	----	----
Meadow, Bare	0.34x + 0.01	22	0.050	0.091	0.50x - 0.08	22	0.053	0.098	0.20x + 0.06	7	0.089	0.117	0.22x - 0.01	7	0.049	0.044
Washington																
Rockford, Spokane Co.																
Couse, Pine	0.56x - 0.05	30	0.166	0.099	0.34x - 0.05	30	0.088	0.052	----	--	----	----	----	--	----	----
Couse, Wheat	0.61x - 0.09	29	0.180	0.108	0.22x - 0.02	29	0.097	0.059	----	--	----	----	----	--	----	----
Caldwell	0.66x - 0.03	27	0.130	0.076	0.26x - 0.02	27	0.090	0.053	0.75x (Est)	--	----	----	----	--	----	----
Thatuna, Wheat	0.34x + 0.09	33	0.138	0.095	0.48x - 0.13	33	0.083	0.052	----	--	----	----	0.57x (Est)	--	----	----
Thatuna, Fallow	0.37x + 0.06	33	0.138	0.082	0.22x - 0.02	33	0.073	0.044	----	--	----	----	----	--	----	----
California																
Tanbark Flat, Los Angeles Co.																
Tanbark, Chaparral	0.37x - 0.01	13	0.136	0.078	0.15x - 0.02	13	0.084	0.044	0.42x (Est)	--	----	----	0.66x (Est)	--	----	----
Tanbark, Bare	0.46x - 0.03	16	0.149	0.080	0.05x + 0.06	16	0.069	0.038	1.02x - 0.02	3	0.024	0.047	1.28x - 0.16	3	0.184	0.055
Sunflower	0.41x - 0.04	7	0.106	0.084	0.26x - 0.06	7	0.024	0.019	0.49x (Est)				0.65x (Est)			
Unconfined Lysimeter A	0.41x + 0.08	12	0.195	0.082	0.62x - 0.22	12	0.145	0.061	1.12x - 0.16	9	0.062	0.123	0.96x - 0.06	9	0.134	0.125
Unconfined Lysimeter B	0.57x - 0.02	15	0.283	0.236	0.30x - 0.05	15	0.093	0.078	0.64x - 0.02	9	0.097	0.181	0.39x + 0.05	9	0.?17	0.286
Unconfined Lysimeter C	0.76x - 0.07	11	0.274	0.297	0.22x - 0.04	11	0.048	0.051	0.95x + 0.07	13	0.066	0.133	0.74x - 0.12	13	0.103	0.104
Unconfined Lysimeter D	0.60x - 0.11	22	0.120	0.068	0.33x - 0.02	22	0.076	0.043	0.98x - 0.18	23	0.098	0.071	0.76x - 0.07	23	0.09?	0.058
Unconfined Lysimeter E	0.45x - 0.05	26	0.173	0.103	0.05x + 0.03	26	0.064	0.038	0.49x - 0.03	16	0.117	0.122	0.32x + 0.05	16	0.205	0.134
Confined Lysimeter 1	0.58x 0.05	19	0.170	0.131	0.03x - 0.01	19	0.034	0.026	0.78x - 0.11	11	0.198	0.241	0.40x - 0.0.	11	0.085	0.103

(Continued)

Table G1 (Continued)

Site	Class I 0- to 6-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b	Class I 6- to 12-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b	Class II 0- to 6-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b	Class II 6- to 12-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b
[illegible]	0.60x - 0.11	[illegible]	[illegible]	[illegible]	[illegible]	11	0.048	0.051	0.95x + [illegible]	[illegible]	[illegible]	0.101	0.39x + 0.05	9	0.217	0.286
Unconfined Lysimeter E	0.45x - 0.05	22	0.120	0.068	0.33x - 0.02	22	0.076	0.043	0.98x - 0.18	13	0.066	0.133	0.74x - 0.12	13	0.103	0.104
Confined Lysimeter 1	0.58x - 0.05	26	0.173	0.103	0.05x + 0.03	26	0.064	0.038	0.49x - 0.03	23	0.098	0.071	0.76x - 0.07	23	0.093	0.058
		19	0.170	0.131	0.08x - 0.01	19	0.034	0.026	0.78x - 0.11	16	0.117	0.122	0.32x + 0.05	16	0.205	0.134
										11	0.198	0.241	0.40x - 0.02	11	0.085	0.103

(Continued)

Table G1 (Continued)

Site	Class I 0- to 6-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b	Class I 6- to 12-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b	Class II 0- to 6-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b	Class II 6- to 12-in. Depth Regression Equation, Est Y	n	$s_{y \cdot x}$	s_b
California (Continued)																
Tanbark Flat, Los Angeles Co. (Continued)																
Confined Lysimeter 3	0.23x + 0.05	26	0.153	0.086	0.03x + 0.07	26	0.069	0.039	0.66x - 0.02	6	0.272	0.239	0.47x + 0.07	6	0.372	0.314
Confined Lysimeter 5	0.38x - 0.02	24	0.139	0.052	0.17x - 0.04	24	0.058	0.022	0.90x - 0.15	8	0.279	0.250	1.00x - 0.19	8	0.190	0.146
Confined Lysimeter 9	0.41x - 0.02	24	0.113	0.042	0.18x - 0.01	24	0.080	0.029	1.12x - 0.27	8	0.142	0.121	1.09x - 0.19	8	0.116	0.097
Confined Lysimeter 19	0.64x - 0.06	9	0.074	0.109	0.32x - 0.03	9	0.655	0.046	1.11x - 0.14	15	0.165	0.122	1.02x - 0.08	15	0.105	0.078
Confined Lysimeter 24	0.73x - 0.02	21	0.324	0.170	0.29x - 0.06	21	0.129	0.068	0.89x - 0.12	24	0.116	0.081	0.62x - 0.04	24	0.153	0.079
North Fork, Madera Co.																
North Fork, Forest	0.48x	17	0.178	0.071	0.36x - 0.04	17	0.122	0.048	0.56x - 0.04	8	0.116	0.298	0.71x - 0.03	9	0.073	0.114
North Fork, Bare	0.47x + 0.06	15	0.171	0.121	0.27x - 0.01	16	0.105	0.071	1.00x - 0.12	9	0.032	0.052	0.91x - 0.11	10	0.100	0.200
Bass Lake, Forest	0.34x - 0.04	6	0.075	0.121	0.63x - 0.21	6	0.130	0.211	0.67x - 0.11	5	0.044	0.074	0.85x - 0.08	5	0.098	0.230
Bass Lake, Bare	0.88x - 0.02	8	0.036	0.057	0.75x - 0.05	8	0.086	0.137	0.99x - 0.14	7	0.089	0.214	0.67x - 0.07	7	0.126	0.397
Colorado																
Grand Junction, Mesa Co.																
East Grand Mesa, Herb.	0.54x - 0.05	13	0.031	0.052	0.28x - 0.02	13	0.018	0.031	----	--	----	----	----	--	----	----
East Grand Mesa, Bare	0.44x - 0.04	15	0.036	0.051	0.16x - 0.01	15	0.011	0.016	----	--	----	----	----	--	----	----
West Grand Mesa, Herb.	0.66x - 0.04	12	0.044	0.067	0.21x - 0.02	12	0.031	0.048	----	--	----	----	----	--	----	----
West Grand Mesa, Bare	0.51x - 0.04	13	0.048	0.074	0.22x - 0.02	13	0.026	0.040	----	--	----	----	----	--	----	----
Spruce	0.47x - 0.01	5	0.014	0.030	0.35x - 0.04	5	0.021	0.044	----	--	----	----	----	--	----	----
Bog	0.47x - 0.03	6	0.028	0.054	0.35x - 0.02	6	0.014	0.027	----	--	----	----	----	--	----	----
Aspen, 1	0.63x - 0.05	11	0.016	0.020	0.39x - 0.04	11	0.013	0.016	----	--	----	----	----	--	----	----
Oakbrush, 1	0.63x - 0.05	11	0.029	0.039	0.31x - 0.02	11	0.017	0.022	----	--	----	----	----	--	----	----
Pinon-Juniper	0.65x - 0.06	14	0.021	0.033	0.30x - 0.02	14	0.018	0.028	----	--	----	----	----	--	----	----
Cedaredge, Delta Co.																
Aspen, 3	0.59x - 0.04	14	0.036	0.047	0.40x - 0.04	14	0.21	0.020	----	--	----	----	----	--	----	----
Aspen, 2	0.60x - 0.05	11	0.020	0.047	0.47x - 0.06	11	0.016	0.038	----	--	----	----	----	--	----	----
Aspen, Bare	0.65x - 0.07	12	0.019	0.043	0.45x - 0.05	12	0.016	0.035	----	--	----	----	----	--	----	----
Oakbrush, 2	0.58x - 0.05	17	0.025	0.027	0.35x - 0.03	17	0.026	0.028	----	--	----	----	----	--	----	----
Oakbrush, Bare	0.60x - 0.05	17	0.021	0.023	0.40x - 0.04	17	0.024	0.026	----	--	----	----	----	--	----	----
Delta City & Co.																
Escalante, Herbaceous	0.61x - 0.07	11	0.010	0.031	0.37x - 0.04	11	0.011	0.035	----	--	----	----	----	--	----	----
Escalante, Bare	0.38x - 0.02	11	0.010	0.031	0.24x - 0.02	11	0.014	0.044	----	--	----	----	----	--	----	----
Badlands	0.55x - 0.05	8	0.015	0.086	0.22x - 0.01	8	0.013	0.073	----	--	----	----	----	--	----	----
New Mexico																
Albuquerque, Bernalillo Co.																
Pine Flat, Herbaceous	0.74x - 0.12	14	0.084	0.052	0.02x + 0.01	15	0.014	0.006	----	--	----	----	----	--	----	----
Pine Flat, Forest	0.60x - 0.19	14	0.133	0.051	0.20x - 0.10	13	0.067	0.025	----	--	----	----	----	--	----	----
Pine Flat, Bare	0.69x - 0.10	14	0.072	0.049	0.02x	20	0.015	0.007	----	--	----	----	----	--	----	----
San Antonito, Herbaceous	0.49x - 0.01	17	0.055	0.027	0.26x - 0.05	15	0.117	0.058	----	--	----	----	----	--	----	----
Sandia Mesa, Herbaceous	0.62x - 0.02	17	0.087	0.164	No accretion.				----	--	----	----				
Flood Plain	0.84x - 0.08	9	0.064	0.150	Depletion delayed one day 0.12x - 0.03	6	0.020	0.060	----	--	----	----	----	--	----	----
Sandoval Co.																
Jemez Dam	0.66x - 0.06	6	0.007	0.025	0.33x - 0.06	6	0.049	0.120	----	--	----	----	----	--	----	----

(Continued)

Table G1 (Continued)

Site	Class I: 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class I: 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II: 0- to 6-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b	Class II: 6- to 12-in. Depth: Regression Equation, Est Y =	n	$s_{y \cdot x}$	s_b
Alaska																
Fairbanks																
Spruce, 1	Soil moisture too variable for prediction analysis															
Birch Hill, Forest, 2F	0.66x - 0.04	18	0.128	0.076	0.17x - 0.02	18	0.045	0.027	----	--	----	----	----	--	----	----
Birch Hill, Herb., 2H	0.59x - 0.03	20	0.062	0.035	0.22x - 0.02	20	0.039	0.022	----	--	----	----	----	--	----	----
Steele Creek, Herb., 4H	0.36x	17	0.079	0.102	0.20x - 0.012	17	0.037	0.063	----	--	----	----	----	--	----	----
Steele Creek, Forest, 4F	0.43x - 0.043	14	0.089	0.046	0.42x - 0.083	14	0.036	0.026	----	--	----	----	----	--	----	----
Birch-Spruce, 6	Soil remained near saturation during period of study															
Birch-Willow, 7	0.77x - 0.107	13	0.121	0.109	0.22x - 0.054	13	0.072	0.065	----	--	----	----	----	--	----	----
Golf Course, Forest, 8F	0.50x - 0.028	15	0.106	0.065	0.37x - 0.09	15	0.069	0.043	----	--	----	----	----	--	----	----
Golf Course, Herb., 8H	0.46x	14	0.079	0.047	0.31x - 0.06	15	0.039	0.023	----	--	----	----	----	--	----	----
Exp. Farm, Forest, 9F	Soil remained near saturation during period of study															
Exp. Farm, Herb., 9H	0.26x + 0.019	14	0.052	0.049	0.14x - 0.006	14	0.054	0.[illegible]	----	--	----	----	----	--	----	----
University Hill, 10	0.81x - 0.12	16	0.070	0.044	0.15x - 0.02	17	0.038	0.[illegible]6	----	--	----	----	----	--	----	----
Dairy, 12	0.86x - 0.08[illegible]	12	0.114	0.084	Estimated	--	----	----	----	--	----	----	----	--	----	----

APPENDIX H: DEPLETION RELATIONS

Tabulations from depletion curves for all sites and seasons for which data are complete are shown in table H1. Cases where data are lacking or where assumptions have been made are noted in a footnote and discussed more fully under the description of the sites in appendix A.

Table H1

Depletion Rates, Inches Moisture per 6 inches of Soil

Day	Vicksburg, Miss., Park						Vicksburg, Miss., Rifle, Herb.						Vicksburg, Miss., Rifle, Bare					
	Summer		Transition		Winter		Summer		Transition		Winter		Summer		Transition		Winter	
	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth
0	2.55	2.33	2.55	2.33	2.55	2.33	2.52	2.43	2.52	2.43	2.52	2.43	2.48	2.54	2.48	2.54	2.48	2.54
1	2.30	2.12	2.50	2.30	2.50	2.30	2.43	2.34	2.45	2.40	2.49	2.40	2.45	2.47	2.45	2.47	2.45	2.48
2	2.15	2.02	2.42	2.28	2.42	2.28	2.37	2.27	2.36	2.38	2.46	2.38	2.42	2.42	2.42	2.42	2.42	2.44
3	2.04	1.96	2.36	2.26	2.38	2.26	2.28	2.21	2.30	2.35	2.43	2.35	2.39	2.35	2.39	2.36	2.40	2.40
4	1.92	1.91	2.30	2.23	2.34	2.23	2.20	2.14	2.26	2.32	2.40	2.33	2.34	2.31	2.34	2.32	2.38	2.37
5	1.81	1.86	2.26	2.21	2.30	2.21	2.10	2.09	2.21	2.29	2.37	2.31	2.30	2.28	2.30	2.30	2.36	2.35
6	1.70	1.82	2.22	2.18	2.26	2.18	2.02	2.03	2.15	2.26	2.35	2.30	2.26	2.24	2.26	2.27	2.34	2.34
7	1.58	1.76	2.18	2.16	2.24	2.16	1.94	1.97	2.09	2.23	2.34	2.29	2.22	2.21	2.22	2.24	2.32	2.33
8	1.47	1.70	2.14	2.14	2.20	2.14	1.86	1.90	2.04	2.20	2.32	2.28	2.19	2.19	2.19	2.72	2.30	2.32
9	1.35	[illegible]	2.08	2.12	2.18	2.12	1.80	1.84	1.99	2.17	2.30	2.27	2.14	2.16	2.14	2.21	2.29	2.31
10	1.26	1.61	2.00	2.10	2.16	2.10	1.70	1.78	1.93	2.14	2.29	2.25	2.10	2.13	2.10	2.20	2.27	2.30
12	1.06	1.50	1.83	2.04	2.13	2.07	1.50	1.66	1.84	2.08	2.26	2.23	2.02	2.09	2.02	2.18	2.25	2.29
14	0.99	1.39	1.72	1.99	2.10	2.05	1.30	1.52	1.75	2.02	2.24	2.21	1.92	2.04	1.92	2.16	2.23	2.28
16	0.81	1.31	1.60	1.94	2.08	2.03	1.10	1.42	1.64	1.97	2.22		1.82	2.00	1.82		[illegible]	2.27
18	0.75	1.20	1.50	1.89	2.06	2.03	1.00	1.32	1.56	1.92	2.20		1.70	1.96	1.70		2.19	
20	0.70	1.11	1.40	1.84	2.04	2.02	0.90	1.25	1.47	1.87	2.18		1.57	1.92	1.57			
25	0.65	0.87	1.21	1.70	2.00	2.00	0.81	1.12	1.25	1.75			1.24	1.84	1.44			
30	0.64	0.71	1.11	1.53			0.75	1.05	1.12	1.63			1.07	1.71	1.34			
40	0.63	0.65		1.26				0.96					0.88	1.60	1.06			
50		0.64		1.17				0.91						1.53	0.99			
60																		
80																		
100																		
150																		
200																		

Day	Vicksburg, Miss., Durden						Vicksburg, Miss., Hardwood						Vicksburg, Miss., Pine					
0	2.88	2.78	Summer and		2.86	2.78	2.26	2.42	2.26	2.42	2.26	2.42	2.08	2.19	2.08	2.19	2.08	2.19
1	2.88	2.78	winter		2.88	2.78	2.23	2.38	2.23	2.38	2.23	2.38	1.80	2.10	2.04	2.17	2.06	2.16
2	2.88	2.78	curves		2.88	2.78	2.19	2.34	2.19	2.34	2.19	2.34	1.59	1.96	1.98	2.14	2.04	2.14
3	2.86	2.78	used		2.86	2.78	2.14	2.31	2.15	2.31	2.15	2.31	1.40	1.84	1.93	2.11	2.02	2.12
4	2.78	2.78			2.81	2.78	2.09	2.27	2.13	2.27	2.13	2.27	1.26	1.73	1.90	2.09	2.00	2.11
5	2.76	2.72			2.76	2.72	2.06	2.24	2.11	2.24	2.11	2.25	1.12	1.62	1.86	2.07	1.98	2.09
6	2.72	2.68			2.73	2.68	2.02	2.19	2.09	2.20	2.10	2.23	1.04	1.53	1.82	2.04	1.96	2.08
7	2.70	2.64			2.70	2.64	1.97	2.15	2.08	2.16	2.10	2.21	1.00	1.42	1.79	2.01	1.94	2.06
8	2.65	2.60			2.65	2.60	1.93	2.10	2.06	2.12	2.09	2.20	0.97	1.34	1.75	1.98	1.92	2.05
9	2.62	2.56			2.62	2.56	1.88	2.06	2.04	2.08	2.09	2.19	0.94	1.27	1.72	1.95	1.91	2.03
10	2.58	2.48			2.58	2.52	1.83	2.00	2.01	2.04	2.08	2.16	0.92	1.21	1.68	1.92	1.89	2.02
12	2.46	2.38			2.55	2.46	1.71	1.87	1.95	1.97	2.07	2.13	0.90	1.10	1.59	1.86	1.85	1.98
14	2.31	2.33			2.52	2.43	1.55	1.72	1.89	1.92	2.07	2.11	0.88	1.04	1.46	1.79	1.83	1.95
16	2.19	2.27			2.46	2.41	1.32	1.50	1.82	1.86	2.05	2.08	0.88	1.01	1.31	1.72		1.91
18	2.06	2.21			[illegible]	2.39	1.05	1.18	1.73	1.81		2.06	0.87	0.98	1.18	1.64		1.88
20	1.90	2.14			2.40	2.37	0.84	0.94	1.64	1.76		2.03	0.85	0.97	1.07	1.55		1.84
25	1.48	1.93				2.32	0.67	0.70	1.40	1.64				0.96	0.91	1.30		1.78
30	1.13	1.64					0.63	0.62	1.30						0.81	1.13		1.74
40	0.80	1.18					0.59	0.55										1.62
50	0.75	1.01					0.55	0.52										
60		0.90					0.52	0.50										
80							0.48	0.46										
100								0.43										
150																		
200																		

Day	Vicksburg, Miss., Radiation, Herb.						Vicksburg, Miss., Radiation, Bare						Vicksburg, Miss., Radiation, Clipped					
0	2.59	2.35	2.59	2.35	2.59	2.35	2.59	2.35	2.59	2.35	2.59	2.35	2.59	2.35	2.59	2.35	2.59	2.35
1	2.27	2.31	2.41	2.33	2.46	2.34	2.44	2.28	2.56	2.30	2.56	2.33	2.36	2.33	2.55	2.34	2.56	2.34
2	2.13	2.28	2.18	2.31	2.34	2.33	2.30	2.18	2.54	2.27	2.54	2.32	2.27	2.32	2.51	2.33	2.52	2.33
3	2.05	2.25	2.07	2.29	2.23	2.32	2.16	2.12	2.51	2.24	2.52	2.30	2.18	2.30	2.46	2.32	2.50	2.33
4	1.96	2.22	1.99	2.27	2.18	2.31	2.02	2.08	2.47	2.21	2.50	2.29	2.10	2.29	2.40	2.30	2.48	2.32
5	1.89	2.19	1.95	2.25	2.14	2.30	1.86	2.04	2.42	2.18	2.48	2.28	2.02	2.27	2.35	2.28	2.47	2.31
6	1.80	2.16	1.91	2.22	2.12	2.29	1.72	2.00	2.37	2.16	2.46	2.27	1.95	2.25	2.30	2.26	2.45	2.31
7	1.68	2.13	1.86	2.20	2.09	2.28	1.62	1.96	2.32	2.14	2.44	2.26	1.87	2.23	2.26	2.25	2.43	2.30
8	1.58	2.10	1.81	2.18	2.08	2.27	1.54	1.93	2.28	2.11	2.42	2.25	1.81	2.21	2.22	2.24	2.41	2.29
9	1.48	2.07	1.78	2.16	2.06	2.26	1.48	1.90	2.18	2.08	2.40	2.24	1.72	2.19	2.17	2.22	2.39	2.29
10	1.37	2.04	1.74	2.14	2.05	2.25	1.43	1.88	2.08	2.05	2.38	2.22	1.61	2.17	2.11	2.21	2.37	2.28
12	1.16	1.98	1.66	2.10	2.03	2.23	1.36	1.83	1.90	2.02	2.32	2.20	1.27	2.12	2.01	2.18	2.33	2.27
14	0.94	1.91	1.59	2.06	2.00	2.21	1.28	1.78	1.78	1.97	2.23	2.18	0.90	2.06	1.91	2.15	2.30	2.26
16	0.70	1.83	1.53	2.02	1.99	2.19	1.20	1.74	1.72	1.93	2.15	2.16	0.56	2.00	1.79	2.12	2.25	2.24
18	0.58	1.74	1.45	1.98	1.97	2.17	1.14	1.70	1.67	1.89	2.08	2.13	0.45	1.95	1.66	2.10	2.22	2.23
20	0.51	1.61	1.38	1.94	1.95	2.15	1.08	1.67	1.62	1.87	2.00	2.11	0.41	1.88	1.56	2.07	2.18	2.22
25	0.43	1.17	1.17	1.84	1.92	2.10	0.96	1.58	1.50	1.79	1.87	2.06	0.34	1.69	1.45	2.02	2.14	2.19
30	0.38	0.86	0.92	1.74	1.89	2.07	0.86	1.50	1.40	1.71	1.76	2.02	0.32	1.44		1.98		2.16
40	0.35	0.71	0.62	1.54	1.88	2.04	0.72	1.37	1.17	1.57	1.62	1.91	0.31	1.04		1.93		2.12
50	0.34	0.67	0.52	1.41		2.03	0.65	1.24	1.00	1.47		1.86		0.92				
60		0.66	0.49	1.32				1.12	0.88	1.41				0.85				
80				1.18				0.97	0.70	1.31				0.80				
100																		
150																		
200																		

(Continued)

Table H1 (Continued)

Day	Vicksburg, Miss., Mound, Herb. Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Vicksburg, Miss., Mound, Bare Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Laurel, Miss., Stockman, Upper Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.71	2.85	2.71	2.85	2.71	2.85	2.82	2.96	2.82	2.96	2.82	2.96			No transition data		2.48	1.88
1	2.60	2.72	2.67	2.82	2.69	2.84	2.75	2.92	2.79	2.92	2.80	2.95					2.47	1.86
2	2.50	2.52	2.58	2.79	2.66	2.84	2.65	2.87	2.76	2.90	2.78	2.93	1.51**	1.31**			2.45	1.83
3	2.40	2.56	2.44	2.76	2.62	2.83	2.57	2.82	2.72	2.87	2.76	2.91	1.37	1.26			2.42	1.81
4	2.30	2.49	2.36	2.72	2.58	2.82	2.48	2.79	2.69	2.85	2.74	2.89	1.30	1.21			2.39	1.79
5	2.20	2.40	2.28	2.68	2.54	2.81	2.40	2.75	2.63	2.83	2.72	2.88	1.21	1.16			2.37	1.78
6	2.13	2.36	2.20	2.65	2.50	2.78	2.32	2.72	2.58	2.80	2.69	2.86	1.10	1.11			2.35	1.77
7	2.04	2.31	2.10	2.62	2.47	2.76	2.27	2.69	2.54	2.78	2.67	2.84	0.96	1.06			2.33	1.75
8	1.96	2.26	2.01	2.58	2.43	2.73	2.23	2.67	2.50	2.75	2.65	2.83	0.86	1.01			2.31	1.74
9	1.90	2.20	1.93	2.54	2.39	2.70	2.19	2.63	2.48	2.73	2.62	2.81	0.76	0.96			2.28	1.73
10	1.83	2.14	1.87	2.50	2.35	2.67	2.14	2.60	2.45	2.63	2.60	2.79	0.66	0.92			2.26	1.72
12	1.72	2.04	1.78	2.42	2.29	2.63	2.00	2.55	2.39	2.63		2.76	0.56	0.85			2.20	1.70
14	1.62	1.95	1.73	2.32	2.72	2.61	1.89	2.50	2.33	2.60		2.74	0.49	0.79			2.16	
16	1.57	1.88	1.68	2.23	2.18	2.60	1.79	2.44	2.28	2.58		2.73	0.43	0.74				
18	1.52	1.82	1.64	2.12	2.14	2.60	1.69	2.39	2.24	2.55			0.36	0.70				
20	1.48	1.77	1.62	2.02	2.12	2.59	1.64	2.30	2.19	2.53			0.32	0.66				
25	1.38	1.68	1.56	1.89			1.56	2.17		2.18			0.27	0.59				
30	1.31	1.63	1.52	1.83			1.49	2.10					0.23	0.54				
40	1.20	1.57					1.44							0.49				
50	1.17	1.52																
60																		
80																		
100																		
150																		
200																		

Day	Laurel, Miss., Stockman, Lower, Herb. Summer 0- to 6-in.	Summer 6- to 12-in.	Transition 0- to 6-in.	Transition 6- to 12-in.	Winter 0- to 6-in.	Winter 6- to 12-in.	Laurel, Miss., Stockman, Lower, Bare Summer 0- to 6-in.	Summer 6- to 12-in.	Transition 0- to 6-in.	Transition 6- to 12-in.	Winter 0- to 6-in.	Winter 6- to 12-in.	Laurel, Miss., Jefcoate Summer 0- to 6-in.	Summer 6- to 12-in.	Transition 0- to 6-in.	Transition 6- to 12-in.	Winter 0- to 6-in.	Winter 6- to 12-in.
0			No transition data		2.54	2.47			No transition data		2.30	2.37			No transition data		2.42	2.30
1					2.52	2.46					2.28	2.35					2.38	2.29
2	1.82**	1.90**			2.50	2.44	1.94**	1.50**			2.27	2.31	1.71**	1.81**			2.35	2.28
3	1.79	1.84			2.48	2.43	1.89	1.88			2.25	2.28	1.66	1.74			2.32	2.26
4	1.77	1.79			2.46	2.41	1.85	1.83			2.23	2.25	1.62	1.69			2.28	2.24
5	1.73	1.75			2.44	2.39	1.80	1.78			2.21	2.22	1.58	1.66			2.25	2.23
6	1.70	1.71			2.42	2.36	1.73	1.72			2.19	2.19	1.53	1.63			2.22	2.21
7	1.66	1.66			2.41	2.33	1.64	1.66			2.17	2.16	1.49	1.60			2.19	2.19
8	1.62	1.61			2.39	2.32	1.57	1.61			2.15		1.44	1.55			2.16	2.17
9	1.57	1.56			2.37	2.30	1.52	1.55			2.11		1.38	1.50			2.13	2.15
10	1.49	1.51			2.35	2.28	1.47	1.51			2.07		1.31	1.46			2.10	2.13
12	1.34	1.40			2.31	2.24	1.39	1.45			2.00		1.19	1.38			2.05	2.09
14	1.26	1.29			2.28	2.17	1.32	1.39			1.96		1.10	1.32			2.00	2.06
16	1.07	1.20			2.25	2.11	1.27	1.35					1.00	1.27			1.94	2.02
18	0.88	1.11			2.22	2.04	1.22	1.31					0.88	1.23			1.89	1.99
20	0.68	1.02			2.19	1.98	1.17	1.27					0.80	1.19			1.84	1.96
25	0.47	0.77			2.11		1.05	1.17					0.64	1.09				1.90
30	0.33	0.59			1.96								0.53	0.94				1.85
40		0.36											0.43	0.67				
50																		
60																		
80																		
100																		
150																		
200																		

Day	Laurel, Miss., Eddins Summer 0- to 6-in.	Summer 6- to 12-in.	Transition 0- to 6-in.	Transition 6- to 12-in.	Winter 0- to 6-in.	Winter 6- to 12-in.	State College, Miss. Vaiden Complex, Herb. Summer 0- to 6-in.	Summer 6- to 12-in.	Transition 0- to 6-in.	Transition 6- to 12-in.	Winter 0- to 6-in.	Winter 6- to 12-in.	State College, Miss. Vaiden Complex, Bare Summer 0- to 6-in.	Summer 6- to 12-in.	Transition 0- to 6-in.	Transition 6- to 12-in.	Winter 0- to 6-in.	Winter 6- to 12-in.
0			No transition data		2.82	3.13	2.94	2.85	2.94	2.85	2.94	2.85	2.67	2.60	2.67	2.60	2.67	2.60
1					2.78	3.11	2.77	2.60	2.77	2.60	2.82	2.70	2.45	2.46	2.53	2.50	2.60	2.56
2	2.01**	2.41**			2.72	3.08	2.66	2.50	2.66	2.50	2.66	2.60	2.26	2.34	2.48	2.44	2.55	2.50
3	1.98	2.40			2.66	3.03	2.55	2.38	2.55	2.38	2.54	2.52	2.10	2.31	2.35	2.38	2.50	2.47
4	1.82	2.39			2.60	3.00	2.42	2.30	2.42	2.30	2.46	2.44	2.00	2.26	2.28	2.34	2.44	2.44
5	1.74	2.38			2.53	2.97	2.26	2.22	2.26	2.22	2.38	2.36	1.90	2.20	2.20	2.29	2.38	2.40
6	1.66	2.37			2.47	2.95	2.16	2.14	2.16	2.14	2.31	2.32	1.80	2.17	2.15	2.26	2.33	2.36
7	1.58	2.33			2.42	2.93	2.07	2.07	2.07	2.07	2.26	2.28	1.75	2.13	2.10	2.23	2.28	2.33
8	1.53	2.30			2.38	2.91	1.97	2.00	1.97	2.00	2.20	2.25	1.70	2.07	2.05	2.19	2.23	2.30
9	1.48	2.25			2.33	2.89	1.88	1.92	1.88	1.92	2.16	2.22	1.66	2.03	2.00	2.14	2.20	2.28
10	1.45	2.19			2.29	2.87	1.78	1.84	1.78	1.84	2.13	2.19	1.62	1.99	1.95	2.10	2.16	2.26
12	1.41	2.13			2.20	2.84	1.62	1.74	1.65	1.74	2.05	2.14	1.54	1.92	1.88	2.03	2.09	2.22
14	1.38	2.06			2.10	2.80	1.50	1.63	1.59	1.70	1.98	2.10	1.50	1.88	1.82	2.00	2.03	2.18
16	1.37	2.00			2.00		1.41	1.54	1.55	1.66	1.92	2.07	1.48	1.86	1.77	1.98	1.98	2.16
18	1.36	1.97					1.36	1.47	1.51	1.63	1.86	2.05	1.46	1.84	1.72	1.96	1.95	2.15
20	1.34	1.94					1.32	1.42	1.49	1.61	1.82	2.03	1.43	1.82	1.63	1.94	1.94	2.14
25	1.30	1.90					1.28	1.35	1.45	1.57	1.76	2.00	1.38	1.79	1.63	1.91	1.91	2.12
30	1.19	1.86					1.26	1.31	1.43	1.55			1.37	1.36	1.60	1.89	1.89	2.10
40		1.76																
50																		
60																		
80																		
100																		
150																		
200																		

(Continued)

** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

Table H1 (Continued)

Oxford, Miss., Providence

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.62	2.82	2.62	2.82	2.62	2.82
1	2.51	2.76	2.51	2.79	2.61	2.75
2	2.39	2.70	2.39	2.76	2.60	2.71
3	2.27	2.65	2.27	2.72	2.58	2.68
4	2.17	2.61	2.17	2.69	2.57	2.66
5	2.09	2.57	2.09	2.66	2.55	2.63
6	2.02	2.52	2.02	2.64	2.51	2.61
7	1.96	2.47	1.96	2.62	2.47	2.58
8	1.90	2.42	1.90	2.59	2.42	2.56
9	1.84	2.37	1.84	2.57	2.38	2.54
10	1.79	2.33	1.79	2.54	2.34	2.53
12	1.69	2.21	1.69	2.50	2.26	2.49
14	1.56	2.12	1.56	2.47	2.19	2.46
16	1.45	2.03		2.43	2.13	2.42
18	1.30	1.91		2.40	2.07	2.39
20	1.10	1.80		2.37	2.01	2.36
25	0.81	1.47		2.30	1.93	2.30
30	0.68	1.20			1.87	2.25
40	0.52	1.06				2.15
50	0.48	1.01				2.06
60		0.99				1.97
80						
100						
150						
200						

Oxford, Miss., Tippah

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.38	2.54	2.38	2.54	2.38	2.54
1	2.26	2.40	2.24	2.50	2.32	2.51
2	2.15	2.26	2.14	2.45	2.28	2.47
3	2.07	2.18	2.04	2.38	2.23	2.43
4	1.95	2.10	1.94	2.34	2.20	2.40
5	1.87	2.03	1.85	2.30	2.17	2.37
6	1.81	1.98	1.80	2.26	2.14	2.33
7	1.76	1.92	1.75	2.21	2.11	2.30
8	1.70	1.86	1.71	2.16	2.09	2.28
9	1.63	1.81	1.69	2.11	2.07	2.26
10	1.51	1.76	1.65	2.07	2.04	2.24
12	1.36	1.68	1.60	2.01	1.98	2.20
14	1.14	1.60	1.55	1.96	1.93	2.16
16	1.04	1.55	1.51	1.92	1.87	2.13
18	0.99	1.51	1.47	1.87	1.81	2.10
20	0.96	1.47	1.44	1.83	1.75	2.06
25	0.87	1.40	1.34	1.73	1.60	1.98
30	0.77	1.38	1.26	1.64	1.46	1.89
40	0.57	1.32	1.09	1.40		1.73
50	0.48	1.28	0.90	1.40		1.61
60		1.27	0.71	1.36		1.52
80						
100						
150						
200						

Oxford, Miss., Lexington

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.66	2.57	2.66	2.57	2.66	2.57
1	2.40	2.53	2.56	2.54	2.56	2.54
2	2.24	2.50	2.44	2.50	2.40	2.51
3	2.09	2.47	2.24	2.46	2.24	2.48
4	2.03	2.43	2.12	2.42	2.16	2.46
5	1.97	2.38	2.04	2.39	2.08	2.43
6	1.91	2.34	2.00	2.36	2.00	2.40
7	1.86	2.30	1.94	2.31	1.96	2.38
8	1.80	2.27	1.88	2.28	1.92	2.36
9	1.78	2.24	1.84	2.24	1.89	2.33
10	1.74	2.20	1.80	2.21	1.87	2.30
12	1.68	2.13	1.74	2.14	1.83	2.26
14	1.64	2.07	1.68	2.08	1.80	2.24
16	1.57	2.00	1.64	2.02	1.78	2.21
18	1.50	1.92	1.58	1.96	1.75	2.19
20	1.42	1.83	1.51	1.91	1.74	2.17
25	1.20	1.65	1.38	1.81		2.15
30	0.80	1.41	1.26	1.76		2.12
40	0.38	1.04	0.98	1.68		
50	0.30	0.90	0.74			
60		0.80	0.51			
80		0.68				
100						
150						
200						

Alexandria, La., Savannah

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.52	2.36	2.52	2.36	2.52	2.36
1	2.24	2.20	2.34	2.24	2.40	2.26
2	2.12	2.10	2.26	2.14	2.34	2.19
3	2.05	2.02	2.20	2.08	2.29	2.14
4	1.98	1.98	2.15	2.05	2.24	2.11
5	1.93	1.94	2.12	2.01	2.19	2.09
6	1.87	1.89	2.08	1.99	2.16	2.06
7	1.83	1.85	2.06	1.77	2.12	2.05
8	1.77	1.82	2.03	1.95	2.09	2.03
9	1.72	1.78	2.01	1.93	2.06	2.02
10	1.66	1.74	1.99	1.91	2.03	2.00
12	1.55	1.66	1.95	1.89	1.99	1.97
14	1.43	1.59	1.91		1.97	1.95
16	1.31	1.52	1.88		1.95	1.94
18	1.15	1.44	1.86		1.94	1.92
20	1.05	1.37			1.93	1.91
25	0.7[illegible]	1.17			1.91	
30	0.48					
40						
50						
60						
80						
100						
150						
200						

Alexandria, La., Caddo

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	3.10	2.76	3.10	2.76	3.10	2.76
1	2.90	2.59	2.91	2.69	2.94	2.69
2	2.75	2.49	2.84	2.61	2.85	2.62
3	2.65	2.41	2.75	2.53	2.80	2.57
4	2.55	2.35	2.69	2.48	2.76	2.53
5	2.47	2.29	2.63	2.42	2.71	2.50
6	2.38	2.22	2.57	2.37	2.66	2.47
7	2.32	2.15	2.52	2.32	2.64	2.45
8	2.24	2.08	2.47	2.27	2.61	2.43
9	2.16	2.01	2.43	2.24	2.59	2.38
10	2.07	1.95	2.40	2.20	2.57	2.36
12	1.92	1.84	2.31	2.14	2.52	2.31
14	1.75	1.75	2.22	2.09	2.48	2.26
16	1.63	1.62	2.15	2.06	2.44	2.22
18	1.47	1.52	2.09	2.02	2.41	2.18
20	1.30	1.39		1.98	2.38	2.14
25	0.90	1.14			2.29	2.08
30	0.78	0.92			2.22	
40						
50						
60						
80						
100						
150						
200						

Nacogdoches, Tex., Boswell

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.07	1.89	2.07	1.89	2.07	1.89
1	1.96	1.84	2.00	1.86	2.03	1.86
2	1.87	1.80	1.94	1.84	1.99	1.84
3	1.78	1.75	1.88	1.81	1.92	1.82
4	1.71	1.70	1.83	1.78	1.87	1.80
5	1.62	1.65	1.78	1.75	1.84	1.79
6	1.50	1.60	1.72	1.72	1.80	1.77
7	1.39	1.56	1.68	1.70	1.78	1.76
8	1.30	1.50	1.64	1.68	1.75	1.74
9	1.20	1.44	1.60	1.65	1.72	1.73
10	1.10	1.38	1.56	1.62	1.70	1.72
12	0.86	1.29	1.46	1.58	1.66	1.69
14	0.59	1.18	1.34	1.54	1.62	1.66
16	0.48	1.08	1.25	1.50	1.59	1.64
18	0.45	1.03	1.18	1.46	1.56	1.62
20	0.43	1.00	1.16	1.43	1.52	1.60
25	0.40	0.95				1.55
30	0.39	0.93				
40	0.38	0.91				
50						
60						
80						
100						
150						
200						

Nacogdoches, Tex., Sawyer

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.99	1.64	1.99	1.64	1.99	1.64
1	1.85	1.61	1.97	1.62	1.97	1.62
2	1.78	1.57	1.94	1.60	1.95	1.60
3	1.72	1.53	1.91	1.58	1.92	1.58
4	1.67	1.49	1.88	1.56	1.88	1.56
5	1.61	1.45	1.85	1.54	1.85	1.54
6	1.55	1.41	1.82	1.51	1.82	1.51
7	1.50	1.37	1.79	1.49	1.79	1.49
8	1.45	1.33	1.75	1.47	1.76	1.47
9	1.39	1.30	1.71	1.44	1.74	1.45
10	1.35	1.26	1.66	1.41	1.72	1.43
12	1.28	1.19	1.56	1.37	1.66	1.41
14	1.18	1.13	1.48	1.33	1.62	1.38
16	1.06	1.06	1.40	1.30	1.59	1.35
18	0.88	0.99	1.34	1.28	1.55	1.33
20	0.70	0.92	1.31	1.26	1.52	1.31
25	0.50	0.77			1.44	
30	0.43	0.64			1.41	
40	0.37	0.53				
50	0.33	0.47				
60		0.45				
80						
100						
150						
200						

Nacogdoches, Tex., Huckabee

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.41	1.56	1.41	1.56	1.41	1.56
1	1.22	1.10	1.28	1.36	1.30	1.40
2	1.03	1.00	1.20	1.20	1.20	1.22
3	0.96	0.92	1.12	1.08	1.12	1.12
4	0.88	0.88	1.02	1.00	1.04	1.04
5	0.82	0.84	0.96	0.92	1.02	1.00
6	0.77	0.80	0.90	0.88	1.00	0.94
7	0.73	0.78	0.88	0.84	0.98	0.90
8	0.70	0.74	0.85	0.82	0.96	0.88
9	0.65	0.72	0.83	0.81	0.95	0.87
10	0.60	0.68	0.82	0.80	0.94	0.86
12	0.54	0.62	0.79	0.77	0.92	0.85
14	0.46	0.54	0.78	0.74	0.91	0.84
16	0.39	0.48	0.76	0.72	0.90	0.82
18	0.34	0.43	0.74	0.69	0.90	0.81
20	0.30	0.38	0.73	0.66	0.89	0.80
25	0.24	0.26				
30	0.22	0.22				
40	0.19	0.17				
50	0.18	0.15				
60						
80						
100						
150						
200						

Crossett, Ark., Headquarters, Forest

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.64	2.26	2.64	2.26	2.64	2.26
1	2.64	2.26	2.64	2.26	2.64	2.26
2	2.64	2.26	2.64	2.26	2.64	2.26
3	2.62	2.25	2.63	2.25	2.64	2.25
4	2.58	2.23	2.62	2.24	2.63	[illegible]
5	2.50	2.20	2.60	2.22	2.61	2.23
6	2.42	2.18	2.56	2.21	2.57	2.22
7	2.32	2.16	2.51	2.19	2.54	2.21
8	2.22	2.14	2.44	2.18	2.50	[illegible]
9	2.12	2.12	2.34	2.16	2.44	[illegible]
10	2.04	2.10	2.24	2.14	2.38	2.18
12	1.90	2.05	2.08	2.10	2.20	2.17
14	1.75	1.99	1.92	2.07	2.14	2.15
16	1.64	1.93	1.78	2.05	2.02	2.14
18	1.48	1.86	1.68	2.02	1.92	2.12
20	1.38	1.78	1.60	2.00	1.84	2.11
25	1.07	1.54	1.38	1.94	1.65	2.08
30	0.74	1.29	1.12	1.88	1.54	2.06
40	0.50	0.80	0.74	1.76		2.00
50	0.46	0.60	0.54	1.63		1.9[illegible]
60	0.44	0.56		1.50		
80		0.53				
100						
150						
200						

(Continued)

Table A1 (Continued)

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
	Crossett, Ark., Headquarters, Bare						Crossett, Ark., Pine-Hardwood						Crossett, Ark., Prairie, Herb.					
[illegible]	[illegible]	2.37	2.36	2.37	2.36	2.37	2.51	2.43	2.51	2.43	2.51	2.43	2.57	2.45	2.57	2.45	2.57	2.45
[illegible]	[illegible]	[illegible]	2.36	2.37	2.36	2.37	2.50	2.42	2.51	2.43	2.51	2.43	2.55	2.43	2.56	2.44	2.56	2.44
[illegible]	[illegible]	[illegible]	2.35	2.36	2.36	2.37	2.49	2.41	2.50	2.42	2.50	2.42	2.53	2.41	2.55	2.44	2.55	2.44
[illegible]	[illegible]	[illegible]	2.34	2.35	2.35	2.36	2.47	2.40	2.50	2.42	2.50	2.42	2.51	2.39	2.54	2.43	2.54	2.44
[illegible]	[illegible]	2.33	2.33	2.34	2.34	2.36	2.45	2.39	2.49	2.41	2.49	2.41	2.49	2.37	2.53	2.42	2.53	2.43
[illegible]	[illegible]	2.32	2.32	2.34	2.33	2.36	2.43	2.38	2.49	2.40	2.49	2.40	2.47	2.35	2.52	2.41	2.52	2.43
[illegible]	[illegible]	2.31	2.30	2.33	2.32	2.36	2.40	2.37	2.48	2.40	2.48	2.40	2.45	2.33	2.51	2.40	2.52	2.42
[illegible]	[illegible]	2.30	2.29	2.32	2.31	2.35	2.37	2.36	2.47	2.39	2.47	2.39	2.43	2.30	2.50	2.39	2.51	2.42
[illegible]	[illegible]	2.29	2.28	2.31	2.30	2.35	2.34	2.34	2.46	2.39	2.46	2.39	2.41	2.28	2.49	2.38	2.50	2.42
[illegible]	[illegible]	2.28	2.26	2.30	2.29	2.35	2.31	2.32	2.45	2.38	2.45	2.39	2.39	2.26	2.48	2.37	2.49	2.41
[illegible]	[illegible]	[illegible]	2.25	2.30	2.28	2.35	2.28	2.30	2.44	2.38	2.44	2.39	2.37	2.24	2.46	2.36	2.48	2.41
[illegible]	[illegible]	[illegible]	2.22	2.29	2.25	2.34	2.22	2.24	2.41	2.37	2.41	2.38	2.32	2.20	2.42	2.34	2.37	2.40
[illegible]	[illegible]	2.23	2.19	2.28	2.23	2.34	2.14	2.18	2.38	2.36	2.39	2.38	2.26	3.16	2.38	2.32	2.46	2.38
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.21	2.33	2.00	2.11	2.34	2.35	2.37	2.37	2.16	2.10	2.34	2.28	2.44	2.37
[illegible]	[illegible]	[illegible]	2.12	2.24	2.19	2.33	1.76	2.00	2.30	2.34	2.36	2.36	1.96	2.02		2.24	2.43	2.35
[illegible]	[illegible]	2.16	2.08	2.22	2.17	2.32	1.52	1.86	2.26	2.33	2.34	2.36	1.76	1.93		2.20	2.42	2.33
[illegible]	[illegible]	2.09	2.00	2.20	2.12	2.31	0.98	1.58	2.19	2.30	2.29	2.33	1.06	1.64			2.38	2.28
[illegible]	[illegible]	[illegible]	1.90		2.07	2.29	0.60	1.30	2.14	2.28	2.25	2.30	0.60	1.24				
[illegible]	[illegible]	1.56	1.70			2.24	0.43	0.91			2.16	2.25	0.34	0.66				
[illegible]	[illegible]	[illegible]					0.40	0.64			2.08	2.21	0.27	0.42				
[illegible]	[illegible]	[illegible]						0.55			2.00			0.37				
[illegible]		1.32						0.45			1.90			0.32				
														0.28				

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
	Crossett, Ark., Prairie, Bare						Crossett, Ark., Brushy Creek						Crossett, Ark., Sandy					
[illegible]	[illegible]	2.54	2.78	2.54	2.78	2.54	2.91	2.87	2.91	2.87	2.91	2.87	1.98	1.59	1.98	1.59	1.98	1.59
[illegible]	[illegible]	2.52	2.76	2.53	2.77	2.54	2.90	2.86	2.90	2.87	2.91	2.87	1.97	1.56	1.98	1.58	1.98	1.59
[illegible]	[illegible]	[illegible]	2.74	2.52	2.76	2.54	2.89	2.85	2.90	2.86	2.90	2.86	1.96	1.53	1.97	1.57	1.98	1.59
[illegible]	[illegible]	[illegible]	2.70	2.50	2.75	2.53	2.88	2.84	2.89	2.86	2.90	2.86	1.94	1.50	1.97	1.56	1.97	1.58
[illegible]	[illegible]	2.34	2.66	2.47	2.74	2.52	2.87	2.83	2.89	2.85	2.89	2.85	1.91	1.47	1.96	1.55	1.97	1.58
[illegible]	[illegible]	2.30	2.62	2.44	2.73	2.52	2.86	2.82	[illegible]	2.85	2.89	2.85	1.84	1.44	1.95	1.54	1.96	1.58
[illegible]	[illegible]	[illegible]	2.56	2.40	2.72	2.51	2.84	2.81	2.88	2.84	2.88	2.85	1.76	1.40	1.92	1.53	1.95	1.57
[illegible]	[illegible]	2.22	2.50	2.36	2.70	2.50	2.82	2.80	2.87	2.84	2.88	2.85	1.66	1.37	1.88	1.52	1.93	1.57
[illegible]	[illegible]	2.18	2.44	2.32	2.67	2.49	2.80	2.79	2.87	2.84	2.88	2.84	1.56	1.34	1.83	1.50	1.92	1.57
[illegible]	[illegible]	2.14	2.39	2.28	2.64	2.48	2.78	2.78	2.86	2.83	2.87	2.84	1.46	1.31	1.78	1.49	1.90	1.56
[illegible]	[illegible]	[illegible]	2.34	2.25	2.60	2.47	2.76	2.77	2.86	2.83	2.87	2.84	1.36	1.28	1.73	1.48	1.88	1.56
[illegible]	[illegible]	2.04	2.26	2.19	2.52	2.44	2.67	2.72	2.94	2.82	2.86	2.83	1.20	1.22	1.64	1.45	1.82	1.55
[illegible]	[illegible]	1.98	2.18	2.14	2.44	2.42	2.54	2.62	2.83		2.85	2.82	1.04	1.16	1.56	1.42	1.78	1.54
[illegible]	[illegible]	1.92	2.10	2.12	2.37	2.39	2.36	2.38	2.81		2.84	2.81	0.88	1.10	1.48	1.33	1.73	1.53
[illegible]	[illegible]	1.85	2.04	2.10	2.31	2.36	2.12	2.18	2.79		2.83	2.80	0.76	1.02	1.42	1.34	1.67	1.51
[illegible]	[illegible]	[illegible]	1.98	2.08	2.25	2.34	1.88	1.98	2.77		2.82	2.79	0.64	0.94	1.36	1.30	1.61	1.49
[illegible]	[illegible]	1.59	1.90		2.12	2.28	1.18	1.52	2.72		2.79	2.74	0.43	0.75	1.21	1.20	1.46	1.44
[illegible]	[illegible]	[illegible]	1.84		2.02	2.23	0.89	1.18			2.77	2.69	0.35	0.62		1.10	1.32	1.39
[illegible]	[illegible]	1.24	1.73		1.90	2.12	0.74	0.98			2.72	2.59	0.25	0.49				1.22
[illegible]		[illegible]	1.62				0.67	0.86			2.67	2.54	0.20	0.43				1.09
[illegible]		[illegible]	1.52				0.61	0.79				2.49		0.39				
[illegible]		[illegible]						0.69						0.36				
								0.63										

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
	Marianna, Fla., Lakeland, Forest						Union, S. C., Barren-Eroded, 2						Union, S. C., Lloyd, 3					
[illegible]	[illegible]	0.86	No transition curves needed		0.84	0.86	2.41	2.42	2.41	2.42	2.41	2.42	1.78	1.98	1.78	1.98	1.78	1.98
[illegible]	[illegible]	[illegible]			0.82	0.85	2.30	2.30	2.32	2.32	2.23	2.32	1.63	1.95	1.72	1.95	1.72	1.96
[illegible]	[illegible]	0.75			0.81	0.84	2.21	2.26	2.24	2.29	2.20	2.30	1.51	1.91	1.63	1.93	1.68	1.94
[illegible]	[illegible]	[illegible]			0.80	0.83	2.14	2.23	2.20	2.27	2.17	2.28	1.38	1.87	1.59	1.91	1.62	1.92
[illegible]	[illegible]	0.66			0.79	0.82	2.08	2.21	2.17	2.25	2.14	2.27	1.25	1.84	1.40	1.89	1.55	1.89
[illegible]	[illegible]	0.62			0.78	0.82	1.97	2.19	2.14	2.24	2.13	2.26	1.11	1.82	1.34	1.87	1.49	1.87
[illegible]	[illegible]	0.58			0.77	0.81	1.85	2.18	2.12	2.23	2.11	2.25	0.99	1.79	1.28	1.85	1.45	1.85
[illegible]	[illegible]	0.54			0.76	0.80	1.79	2.16	2.10	2.22	2.10	2.24	0.90	1.76	1.23	1.83	1.42	1.83
[illegible]	[illegible]	0.50			0.75	0.79	1.77	2.14	2.05	2.22	2.10	2.24	0.80	1.70	1.19	1.81	1.39	1.81
[illegible]	[illegible]	0.46			0.74	0.78	1.75	2.11	1.95	2.21	2.09	2.23	0.70	1.58	1.16	1.80	1.36	1.80
[illegible]	[illegible]	0.42			0.73	0.77	1.74	2.09	1.88	2.20	2.08	2.23	0.64	1.48	1.14	1.79	1.34	1.79
[illegible]	[illegible]	0.34			0.71	0.76	1.73	2.06	1.81	2.18	2.06	2.22	0.56	1.40	1.09	1.77	1.31	1.77
[illegible]	[illegible]	0.26			0.69	0.74	1.72	2.03	1.79	2.17	2.05	2.21	0.50	1.32	1.04	1.75	1.30	1.75
[illegible]	[illegible]	0.19			0.67	0.72	1.71	2.00	1.77	2.15	2.04	2.20	0.45	1.24	1.00	1.73	1.29	1.73
[illegible]		0.16			0.64	0.70	1.70	1.97	1.76	2.14	2.02	2.19	0.41	1.20	0.94	1.71	1.28	1.71
[illegible]		0.14			0.62	0.69	1.70	1.95	1.75	2.12	2.01	2.19	0.39	1.15	0.90	1.70	1.28	1.71
[illegible]		0.13			0.57	0.64	1.70	1.90		2.08	2.00		0.38	1.11	0.79	1.66	1.28	1.70
[illegible]					0.51	0.60	1.69	1.86		2.04	1.99		0.38	1.11	0.73	1.60	1.27	
[illegible]					0.41	0.52	1.68	1.85		1.98	1.98				0.65	1.40		
[illegible]					0.31	0.44										1.21		
[illegible]						0.38										1.17		

(Continued)

Table H1 (Continued)

Day	Union, S. C., Loblolly, 5						Union, S. C., 30- to 40-yr Shortleaf, 6						Union, S. C., 40- to 50-yr Shortleaf, 7					
	Summer		Transition		Winter		Summer		Transition		Winter		Summer		Transition		Winter	
	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth
0	1.52	2.66	1.52	2.66	1.52	2.66	1.44	2.07	1.44	2.07	1.44	2.07	1.55	2.09	1.55	2.09	1.55	2.09
1	1.33	2.34	1.45	2.60	1.45	2.64	0.97	1.89	1.26	1.99	1.39	1.99	[illegible]	1.84	1.52	1.97	1.52	1.99
2	1.22	2.24	1.40	2.56	1.42	2.61	0.86	1.84	1.20	1.93	1.34	1.94	1.16	1.74	1.49	[illegible]	1.51	1.93
3	1.13	2.10	1.34	2.52	1.39	2.58	0.69	1.80	1.15	1.90	1.30	1.92	1.02	1.70	1.46	1.82	1.49	1.89
4	0.90	2.00	1.29	2.50	1.36	2.56	0.53	1.76	1.10	1.86	1.26	1.90	0.88	1.67	1.43	1.79	1.47	1.85
5	0.72	1.92	1.22	2.48	1.34	2.54	[illegible]	1.70	1.06	1.83	1.23	1.89	0.78	1.64	1.40	1.76	1.45	1.81
6	0.66	1.86	.10	2.46	1.32	2.52	0.46	1.60	1.01	1.79	1.20	1.98	0.70	1.60	1.36	1.74	1.42	1.79
7	0.61	1.82	1.00	2.43	1.30	2.50	0.44	1.50	0.98	1.76	1.18	1.86	0.63	1.56	1.33	1.72	1.40	1.76
8	0.59	1.80	0.93	2.40	1.28	2.48	0.42	1.45	0.93	1.72	1.15	1.85	0.60	1.51	1.30	1.70	1.37	1.74
9	[illegible]	1.78	0.87	2.36	1.26	2.46	0.41	1.42	0.87	1.69	1.13	1.84	0.58	1.46	1.27	1.69	1.35	1.72
10	0.53	1.76	0.82	2.30	1.24	2.45	0.40	1.39	0.80	1.63	1.10	1.82	0.57	1.42	1.24	1.67	1.32	1.71
12	0.50	1.73	0.74	2.22	1.18	2.42	0.38	1.36	0.55	1.52	1.07	1.80	0.56	1.38	1.10	1.63	1.28	1.69
14	0.49	1.72	0.68	2.15	1.10	2.39	0.36	1.34	0.49	1.47	1.05	1.78	0.55	1.33	0.96	1.60	1.24	1.68
16	0.48	1.71	0.63	2.09	0.97	2.36	0.34	1.32	0.46	1.45	1.03	1.77	0.54	1.31	0.88	1.56	1.20	1.68
18	0.48	1.70	0.59	2.04	0.90	2.32	0.32	1.31	0.44	1.43	1.01	1.77	0.53	1.30	0.81	1.53	1.18	1.67
20	0.47	1.69	0.57	1.99	0.85	2.29	0.31	1.30	0.42	1.41	1.01	1.76	0.53	1.30	0.76	1.50	1.17	1.67
25	0.47	1.68	0.54	1.88	0.77	2.22	0.30	1.27	0.38	1.38	1.00	1.75	0.52	1.29	0.63	1.42	1.15	1.66
30	0.47	1.68	0.52	1.81	0.74	2.17		1.24	0.35	1.35	0.99	1.74	0.52	1.29	0.59	1.36	1.14	[illegible]
40		1.67	0.51	1.79		2.11			0.33	1.31	0.98	1.72			0.56	1.32	1.13	1.65
50										1.30	0.96	1.70						
60											0.94	1.68						
80											0.92	1.66						
100											0.90	1.64						
150																		
200																		

Day	Poplar Bluff, Mo., Weldon, Forest						Poplar Bluff, Mo., Weldon, Bare						Robbs, Ill., Grantsburg					
0	2.07	2.38	2.07	2.38	2.07	2.38	2.30	2.46	2.30	2.46	2.30	2.46	2.30	2.36	2.30	2.36	2.30	2.36
1	1.95	2.26	1.94	2.36	2.02	2.36	2.19	2.37	2.25	2.43	2.29	2.43	2.26	2.29	2.28	2.32	2.28	2.34
2	1.83	2.16	1.82	2.33	1.95	2.35	2.04	2.28	2.21	2.40	2.27	2.40	2.22	2.24	2.26	2.28	2.26	2.32
3	1.71	2.08	1.78	2.30	1.90	2.30	1.92	2.20	2.16	2.38	2.25	2.38	2.18	2.19	2.25	2.24	2.24	2.31
4	1.60	1.98	1.75	2.28	1.86	2.28	1.83	2.13	2.11	2.33	2.22	2.34	2.13	2.12	2.23	2.20	2.21	2.29
5	1.49	1.90	1.72	2.25	1.84	2.27	1.77	2.03	2.06	2.30	2.21	2.32	2.06	2.05	2.20	2.17	2.19	2.27
6	1.38	1.82	1.69	2.22	1.81	2.25	1.65	1.95	2.01	2.27	2.19	2.28	2.00	1.99	2.16	2.14	2.17	2.26
7	1.28	1.74	1.66	2.20	1.78	2.24	1.57	1.86	1.98	2.23	2.17	2.24	1.95	1.94	2.12	2.11	2.15	2.24
8	1.18	1.66	1.64	2.17	1.76	2.23	1.48	1.78	1.92	2.20	2.15	2.21	1.88	1.89	2.08	2.08	2.13	2.23
9	1.08	1.59	1.61	2.15	1.74	2.22	1.40	1.71	1.88	2.16	2.13	2.18	1.82	1.85	2.04	2.05	2.10	2.21
10	0.98	1.52	1.59	2.12	1.73	2.21	1.25	1.65	1.82	2.13	2.11	2.15	1.76	1.81	2.00	2.02	2.08	2.19
12	0.78	1.38	1.54	2.07	1.71	2.18	1.12	1.56	1.71	2.06	2.07	2.10	1.64	1.75	1.93	1.96	2.03	2.16
14	0.65	1.22	1.50	2.02	1.68	2.16	0.98	1.48	1.59	1.99	2.03	2.05	1.51	1.66	1.86	1.89	1.97	2.14
16	0.60	1.06	1.46	1.98	1.66	2.14	0.88	1.36	1.48	1.92	2.00	2.01	1.38	1.56	1.79	1.82	1.92	2.11
18	0.57	0.92	1.43	1.94	1.63	2.11	0.78	1.29	1.36	1.84	1.97	1.99	1.24	1.44	1.70	1.74	1.88	2.08
20	0.54	0.85	1.40	1.90	1.61	2.09	0.70	1.21	1.26	1.77	1.95	1.96	1.07	1.32	1.63	1.68	1.84	2.06
25	0.52	0.76	1.10	1.79	1.55	2.05	0.54	1.05	1.05	1.60	1.90		0.78	1.01	1.44	1.56	1.75	1.99
30	0.51	0.72	0.72	1.69	1.50	2.00	0.48	0.91	0.91	1.40			0.65	0.83	1.25	1.46	1.67	1.94
40	0.49	0.66	0.56	1.48	1.37		0.41	0.69					0.55	0.66	0.90	1.27		
50	0.48	0.64	0.54	1.26	1.28			0.56						0.59		1.10		
60				1.03				0.49								0.96		
80				0.72				0.42										
100				0.64														
150																		
200																		

Day	Dilldown, Pa., Pimple Hill, 3						Dilldown, Pa., Old Farm, 4						Dilldown, Pa., Quarry Road, 8					
0	0.87	1.48	0.87	1.48	0.87	1.48	2.14	2.53	2.14	2.53	2.14	2.53	2.32	3.14	2.32	3.14	2.32	3.14
1	0.76	1.30	0.79	1.38	0.79	1.42	1.99	2.43	2.10	2.50	2.12	2.50	2.08	2.94	2.07	2.94	2.12	[illegible]
2	0.72	1.26	0.73	1.34	0.73	1.36	1.95	2.39	2.07	2.48	2.10	2.47	2.04	2.88	2.02	2.88	2.07	2.88
3	0.69	1.24	0.69	1.31	0.69	1.32	1.92	2.35	2.04	2.45	2.08	2.45	2.00	2.81	1.98	2.82	2.02	2.80
4	0.66	1.21	0.67	1.28	0.67	1.30	1.90	2.34	2.01	2.41	2.05	2.43	1.97	2.75	1.96	2.77	1.99	2.78
5	0.63	1.19	0.65	1.26	0.65	1.27	1.87	2.32	1.99	2.38	2.03	2.40	1.94	2.68	1.93	2.72	1.97	2.73
6	0.61	1.17	0.63	1.24	0.63	1.25	1.84	2.31	1.98	2.36	2.00	2.38	1.90	2.62	1.90	2.69	1.94	2.70
7	0.58	1.16	0.62	1.22	0.62	1.24	1.82	2.30	1.97	2.34	1.98	2.36	1.88	2.57	1.88	2.66	1.92	2.67
8	0.56	1.14	0.61	1.21	0.61	1.23	1.79	2.28	1.96	2.33	1.96	2.35	1.84	2.52	1.86	2.64	1.90	2.64
9	0.53	1.12	0.60	1.20	0.60	1.22	1.76	2.27	1.94	2.32	1.94	2.34	1.82	2.47	1.84	2.60	1.87	2.61
10	0.51	1.11	0.59	1.19	0.59	1.21	1.74	2.26	1.93	2.32	1.92	2.33	1.80	2.43	1.83	2.57	1.86	2.58
12	0.46	1.09	0.58	1.18	0.58	1.20	1.69	2.23	1.91	2.31	1.90	2.32	1.76	2.37	1.80	2.53	1.85	2.53
14	0.42	1.06	0.57	1.16	0.57	1.20	1.62	2.21	1.88	2.30	1.88	2.31	1.72	2.33	1.78	2.49	1.85	2.51
16	0.36	1.04	0.56	1.15	0.56	1.19	1.55	2.19	1.86	2.29	1.86	2.31	1.68	2.30	1.77	2.45	1.85	2.50
18	0.31	1.00	0.56	1.15	0.56	1.18	1.47	2.16	1.84	2.28	1.84	2.30	1.65	2.25	1.76	2.41	1.85	2.48
20	0.26	0.98	0.55	1.14	0.55	1.18	1.44	2.13	1.82	2.27	1.83	2.30	1.62	2.21	1.75	2.38	1.85	2.48
25	0.19	0.91	0.55	1.14	0.55		1.42	2.07	1.78	2.25		2.28	1.54	2.11	1.74	2.34	1.84	2.47
30	0.18	0.86		1.14			1.41	2.02	1.77	2.23			1.47	2.02	1.73	2.32	1.84	
40									1.76	2.22					1.71	2.29		
50										2.21					1.69	2.27		
60																		
80																		
100																		
150																		
200																		

(Continued)

Table H1 (Continued)

	Summer		Transition		Winter		Summer		Transition		Winter		Summer		Transition		Winter	
Day	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth	0- to 6-in. Depth	6- to 12-in. Depth
	Old Town, Maine, Young Pine						Old Town, Maine, Mature Pine						Old Town, Maine, Fir-Cedar					
	Soil moisture content too variable for prediction analysis						Soil moisture content too variable for prediction analysis						Soil moisture content too variable for prediction analysis					
	Rhinelander, Wis., Sortek, Bare						Rhinelander, Wis., Sortek, Herb.						Rhinelander, Wis., Sortek, Forest					
	Moisture unit record affected by herbicide treatment						3.28	2.78	3.28	2.78	3.28	2.78	2.31	1.97	2.31	1.97	2.31	1.97
							3.00	2.70	3.27	2.76	3.27	2.77	2.28	1.96	2.28	1.97	2.30	1.97
							2.85	2.60	3.25	2.74	3.26	2.76	2.24	1.95	2.25	1.96	2.28	1.97
							2.69	2.54	3.23	2.72	3.25	2.75	2.16	1.94	2.22	1.96	2.27	1.97
							2.57	2.46	3.21	2.70	3.23	2.74	2.12	1.93	2.21	1.96	2.26	1.96
							2.50	2.36	3.18	2.68	3.22	2.73	2.08	1.92	2.19	1.96	2.24	1.96
							2.39	2.30	3.16	2.65	3.21	2.71	2.03	1.91	2.18	1.95	2.23	1.96
							2.34	2.23	3.13	2.62	3.19	2.69	2.00	1.89	2.17	1.95	2.21	1.96
							2.27	2.18	3.11	2.58	3.17	2.67	1.96	1.87	2.16	1.95	2.20	1.96
							2.21	2.16	3.08	2.56	3.16	2.65	1.91	1.84	2.15	1.94	2.19	1.95
							2.12	3.06	3.06	2.53	3.14	2.63	1.87	1.80	2.14	1.94	2.19	1.95
							2.00	2.04	3.00	2.47	3.00	2.58	1.77	1.72	2.11	1.93	2.17	1.95
							1.93	1.96	2.93	2.41	3.06		1.57	1.63	2.10	1.92		1.94
							1.88	1.86	2.83	2.33	2.99		1.28	1.56	2.09	1.91		1.94
							1.83	1.78	2.71	2.26	2.92		1.10	1.45		1.90		1.93
							1.78	1.69	2.59	2.19	2.84		0.97	1.35		1.89		1.93
							1.71	1.53	2.42		2.64		0.79	1.12		1.86		
							1.68	1.44					0.71	0.94				
							1.65	1.36					0.68	0.78				
							1.63	1.32					0.66	0.76				
								1.30										
	Rhinelander, Wis., Hagen, Low						Rhinelander, Wis., Hagen, Slope						Rhinelander, Wis., Hagen, Peat					
	[illegible]	1.21	1.47	1.21	1.47	1.21	Soil moisture content too variable for prediction analysis						Site remained near saturation during period of study					
	[illegible]	1.16	1.42	1.21	1.43	1.21												
	[illegible]	1.14	1.37	1.20	1.39	1.21												
	[illegible]	1.11	1.30	1.20	1.35	1.20												
	[illegible]	1.17	1.25	1.19	1.31	1.20												
	[illegible]	1.14	1.21	1.19	1.28	1.20												
	[illegible]	1.11	1.16	1.19	1.25	1.20												
	[illegible]	1.07	1.11	1.18	1.22	1.19												
	[illegible]	1.04	1.07	1.18	1.18	1.19												
	[illegible]	1.02	1.02	1.17	1.16	1.19												
	[illegible]	1.00	0.99	1.16	1.13	1.18												
	[illegible]	0.96	0.97	1.14	1.09	1.13												
	[illegible]	0.91		1.12		1.17												
	[illegible]	0.88		1.10														
	[illegible]	0.84		1.08														
	[illegible]	0.80		1.05														
	[illegible]	0.68																
	[illegible]	0.59																
		0.54																
		0.51																

(Continued)

Table H1 (Continued)

Rhinelander, Wis., Peat Swamp

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
12	Site remained near saturation during period of study					
14						
16						
18						
20						
25						
30						
40						
50						
60						
80						
100						
150						
200						

Rhinelander, Wis., Timber Lake

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.68	1.32	1.68	1.32	1.68	1.32
1	1.55	1.20	1.56	1.29	1.63	1.29
2	1.42	1.12	1.48	1.27	1.58	1.27
3	1.34	1.04	1.42	1.25	1.54	1.26
4	1.30	0.98	1.38	1.23	1.50	1.25
5	1.25	0.94	1.33	1.22	1.47	1.22
6	1.18	0.90	1.30	1.20	1.44	1.20
7	1.12	0.87	1.27	1.18	1.42	1.18
8	1.06	0.85	1.25	1.16	1.38	1.16
9	0.97	0.82	1.24	1.14	1.36	1.15
10	0.86	0.79	1.21	1.12	1.33	1.14
12	0.66	0.74	1.15	1.09	1.28	1.12
14	0.57	0.70	1.11	1.06		
16	0.54	0.67	1.07	1.02		
18	0.52	0.65	1.04	1.00		
20	0.50	0.63	1.02	0.96		
25	0.47	0.58				
30	0.46	0.52				
40	0.44	0.50				
50	0.44					
60						
80						
100						
150						
200						

Rhinelander, Wis., Peterson

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.29	1.96	2.29	1.96	2.29	1.96
1	2.18	1.90	2.20	1.92	2.25	1.94
2	2.06	1.84	2.14	1.90	2.21	1.92
3	1.98	1.79	2.07	1.87	2.17	1.91
4	1.91	1.73	2.01	1.85	2.14	1.89
5	1.83	1.62	1.98	1.82	2.11	1.87
6	1.76	1.56	1.93	1.79	2.08	1.85
7	1.70	1.50	1.89	1.77	2.06	1.84
8	1.62	1.44	1.87	1.75	2.03	1.82
9	1.51	1.40	1.84	1.73	2.01	1.80
10	1.43	1.35	1.82	1.71	1.99	1.79
12	1.27	1.26	1.77	1.67	1.94	1.76
14	1.12	1.18		1.64	1.90	1.73
16	1.01	1.12		1.61	1.87	1.71
18	0.92	1.05			1.84	1.69
20	0.84	0.98				1.67
25	0.70	0.83				
30	0.62	0.68				
40	0.53	0.50				
50	0.51	0.42				
60						
80						
100						
150						
200						

Rhinelander, Wis., Gudis

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.62	2.00	2.62	2.00	2.62	2.00
1	2.58	1.96	2.60	1.98	2.60	1.99
2	2.51	1.92	2.58	1.96	2.59	1.99
3	2.41	1.88	2.56	1.94	2.57	1.98
4	2.31	1.82	2.52	1.92	2.55	1.97
5	2.20	1.77	2.49	1.90	2.53	1.97
6	2.08	1.71	2.44	1.88	2.51	1.96
7	2.00	1.65	2.38	1.86	2.49	1.96
8	1.90	1.57	2.35	1.85	2.46	1.96
9	1.84	1.50	2.32	1.84	2.44	1.96
10	1.76	1.42	2.30	1.84	2.42	1.96
12	1.61	1.33	2.27		2.38	1.95
14	1.50	1.26	2.25			1.95
16	1.41	1.20				
18	1.34	1.12				
20	1.31	1.04				
25	1.26	0.94				
30	1.24	0.87				
40	1.22	0.84				
50	1.21	0.82				
60	1.21	0.82				
80						
100						
150						
200						

Rhinelander, Wis., Gross School, Forest

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.77	2.12	2.77	2.12	2.77	2.12
1	2.73	2.08	2.68	2.11	2.72	2.11
2	2.65	2.06	2.63	2.09	2.69	2.09
3	2.54	2.01	2.60	2.07	2.67	2.08
4	2.39	1.98	2.56	2.04	2.64	2.08
5	2.29	1.93	2.52	2.02	2.62	2.07
6	2.20	1.87	2.48	2.01	2.60	2.07
7	2.13	1.82	2.42	1.99	2.58	2.06
8	2.03	1.77	2.35	1.97	2.57	2.05
9	1.95	1.73	2.31	1.95	2.56	2.05
10	1.90	1.66	2.28	1.93	2.55	2.04
12	1.52	1.56	2.25	1.90		2.03
14	1.28	1.46	2.21	1.87		2.02
16	1.14	1.39		1.84		2.01
18	1.04	1.31		1.82		
20	0.97	1.21				
25	0.91	1.00				
30	0.89	0.82				
40	0.87	0.71				
50	0.86	0.69				
60						
80						
100						
150						
200						

Rhinelander, Wis., Gross School, Ferb.

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.97	2.46	2.97	2.46	2.97	2.46
1	2.72	2.35	2.72	2.40	2.86	2.42
2	2.54	2.22	2.62	2.36	2.80	2.40
3	2.42	2.12	2.52	2.34	2.72	2.38
4	2.34	2.03	2.43	2.31	2.66	2.35
5	2.29	1.97	2.36	2.28	2.62	2.32
6	2.25	1.92	2.33	2.25	2.56	2.28
7	2.19	1.87	2.29	2.22	2.52	2.23
8	2.13	1.80	2.24	2.19	2.48	2.20
9	2.07	1.76	2.20	2.16	2.45	2.17
10	1.96	1.72	2.18	2.12	2.41	2.15
12	1.81	1.64	2.12	2.06	2.35	
14	1.68	1.58	2.09	1.99	2.31	
16	1.57	1.51	2.06	1.92	2.29	
18	1.50	1.44		1.86		
20	1.46	1.38		1.82		
25	1.42	1.26				
30	1.40	1.18				
40	1.39	1.14				
50						
60						
80						
100						
150						
200						

Rhinelander, Wis., Wet Spencer

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
12	Soil remained near saturation during period of study					
14						
16						
18						
20						
25						
30						
40						
50						
60						
80						
100						
150						
200						

Rhinelander, Wis., Noisy Creek

Soil remained near saturation during period of study

Miles City, Mont., Gumbo

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0						
1	3.23*	2.46*	3.23*	2.46*	No winter data	
2						
3	2.00**	1.8[illegible]**	2.52**	1.72**		
4	1.97	1.67	2.41	1.69		
5	1.94	1.62	2.33	1.65		
6	1.94	1.58	2.30	1.62		
7	1.91	1.55	2.25	1.60		
8	1.88	1.52	2.22	1.58		
9	1.84	1.50	2.18	1.56		
10	1.80	1.48	2.14	1.53		
12	1.76	1.47	2.10	1.50		
14	1.66	1.46	2.03	1.46		
16	1.51	1.44	1.92	1.43		
18	1.35	1.42	1.84	1.42		
20	1.28	1.39	1.79	1.41		
25	1.15	1.37	1.74	1.40		
30	1.07	1.33	1.68	1.26		
40		1.29	1.23	1.20		
50		1.28				
60		1.24				
80		1.20				
100						
150						
200						

(Continued)

* Field maximum moisture content determined by artificial wetting.
** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

Table H1 (Continued)

Miles City, Mont., River

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.74*	2.50*	2.74*	2.50*	No winter data	
1						
2	2.40**	1.54**	1.96**	1.89**		
3	2.13	1.53	1.94	1.89		
4	2.00	1.53	1.92	1.89		
5	1.91	1.52	1.89	1.89		
6	1.81	1.51	1.86	1.89		
7	1.69	1.48	1.83	1.88		
8	1.55	1.43	1.80	1.88		
9	1.40	1.39	1.77	1.87		
10	1.31	1.36	1.73	1.86		
12	1.23	1.33	1.65	1.85		
14	1.14	1.28	1.54	1.83		
16	1.05	1.23	1.43	1.80		
18	0.99	1.19	1.32	1.78		
20	0.93	1.14	1.21	1.69		
25	0.88	1.10	0.90	1.60		
30	0.83	1.05	0.71	1.33		
40	0.72	0.97		1.08		
50				0.94		
60						
80						
100						
150						
200						

Miles City, Mont., Highway

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.10*	2.10*	2.10*	2.10*	No winter data	
1						
2	1.61**	1.05**	1.58**	1.28**		
3	1.54	1.02	1.55	1.27		
4	1.46	0.99	1.52	1.26		
5	1.36	0.97	1.49	1.26		
6	1.26	0.95	1.46	1.25		
7	1.16	0.83	1.42	1.25		
8	1.06	0.80	1.39	1.24		
9	0.97	0.77	1.35	1.23		
10	0.88	0.74	1.31	1.23		
12	0.79	0.71	1.22	1.22		
14	0.73	0.65	1.14	1.21		
16	0.68	0.59	1.05	1.19		
18	0.65	0.54	0.86	1.18		
20	0.63		0.70	1.17		
25	0.56			1.13		
30				1.00		
40				0.79		
50				0.57		

Priest River, Idaho, Blue Lake

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth

Soil remained near saturation during period of study

Priest River, Idaho, Burn

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.69	2.83	2.69	2.83	No winter data	
1	2.67	2.75	2.68	2.77		
2	2.65	2.67	2.66	2.69		
3	2.63	2.59	2.65	2.61		
4	2.61	2.51	2.63	2.53		
5	2.59	2.43	2.61	2.45		
6	2.56	2.36	2.59	2.40		
7	2.52	2.29	2.57	2.37		
8	2.48	2.22	2.55	2.34		
9	2.44	2.15	2.53	2.31		
10	2.40	2.08	2.51	2.29		
12	2.32	1.96	2.47	2.25		
14	2.24	1.85	2.43			
16	2.16	1.75	2.39			
18	2.08	1.66	2.35			
20	1.98	1.58				
25	1.77	1.44				
30	1.64	1.32				
40	1.25	1.06				
50	0.80	0.89				
60	0.71	0.80				
80	0.66	0.76				
100						
150						
200						

Priest River, Idaho, Timber

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.80	2.78	2.80	2.78	No winter data	
1	2.77	2.72	2.78	2.76		
2	2.73	2.66	2.76	2.75		
3	2.69	2.62	2.74	2.73		
4	2.65	2.58	2.73	2.71		
5	2.61	2.54	2.71	2.69		
6	2.58	2.50	2.70	2.67		
7	2.55	2.46	2.69	2.66		
8	2.52	2.42	2.67	2.65		
9	2.50	2.38	2.65	2.64		
10	2.47	2.34	2.64	2.62		
12	2.38	2.26	2.61	2.60		
14	2.29	2.19	2.58	2.57		
16	2.21	2.11	2.55	2.55		
18	2.11	2.05	2.52	2.52		
20	2.01	1.96		2.49		
25	1.84	1.67				
30	1.72	1.46				
40	1.40	1.16				
50	1.03	0.98				
60	0.95	0.88				
80	0.88	0.80				

Priest River, Idaho, Benton

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.46	2.47	No transition data		No winter data	
1	2.40	2.40				
2	2.32	2.32				
3	2.24	2.14				
4	2.16	2.06				
5	2.08	1.98				
6	2.00	1.92				
7	1.93	1.87				
8	1.86	1.83				
9	1.79	1.79				
10	1.73	1.76				
12	1.61	1.71				
14	1.52	1.66				
16	1.45	1.62				
18	1.39	1.57				
20	1.29	1.54				
25	1.05	1.46				
30	0.91	1.37				
40	0.78	1.17				
50	0.75	0.96				
60	0.74	0.88				
80	0.73	0.82				
100	0.73	0.79				

Priest River, Idaho, Meadow, Herb.

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	3.45	3.53	3.45	3.53	No winter data	
1	3.37	3.45	3.41	3.48		
2	3.28	3.37	3.37	3.43		
3	3.19	3.26	3.34	3.37		
4	3.05	3.14	3.30	3.30		
5	2.92	3.01	3.27	3.22		
6	2.80	2.91	3.23	3.12		
7	2.70	2.80	3.19	3.02		
8	2.60	2.70	3.15	2.92		
9	2.50	2.60	3.11	2.84		
10	2.40	2.50	3.08	2.78		
12	2.26	2.39	3.01	2.69		
14	2.08	2.30	2.88	2.61		
16	1.90	2.19	2.75	2.55		
18	1.75	2.10	2.67			
20	1.66	2.01	2.61			
25	1.49	1.72				
30	1.34	1.49				
40	1.12	1.19				
50	1.03	0.99				
60	0.98	0.87				

Priest River, Idaho, Meadow, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	3.45	3.53	3.45	3.53	No winter data	
1	3.36	3.47	3.41	3.51		
2	3.29	3.42	3.38	3.49		
3	3.22	3.37	3.35	3.47		
4	3.16	3.32	3.32	3.46		
5	3.10	3.27	3.30	3.44		
6	3.05	3.22	3.28	3.42		
7	3.00	3.17	3.26	3.41		
8	2.95	3.12	3.24	3.40		
9	2.91	3.07	3.22	3.38		
10	2.86	3.02	3.20	3.37		
12	2.75	2.94	3.17	3.35		
14	2.65	2.83	3.13	3.33		
16	2.58	2.70	3.09	3.31		
18	2.50	2.59	3.06	3.30		
20	2.42	2.47	3.03	3.28		
25	2.21	2.13	2.96	3.23		
30	1.93	1.89	2.89	3.18		
40	1.61	1.71		3.04		
50	1.49	1.59				
60	1.46	1.54				

Rockford, Wash., Couse, Pine

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0					2.77	2.88
1					2.70	2.80
2	2.34**	1.78**	2.40**	2.18**	2.62	2.72
3	2.30	1.75	2.38	2.16	2.60	2.62
4	2.27	1.73	2.36	2.15	2.57	2.52
5	2.24	1.71	2.34	2.14	2.55	2.48
6	2.20	1.69	2.32	2.13	2.53	2.44
7	2.16	1.66	2.30	2.12	2.51	2.40
8	2.12	1.64	2.28	2.11	2.49	2.36
9	2.08	1.62	2.26	2.10	2.46	2.34
10	2.05	1.60	2.24	2.08	2.44	2.32
12	1.99	1.55	2.19	2.06	2.40	2.28
14	1.90	1.50	2.14	2.03	2.35	2.24
16	1.82	1.46	2.10	2.01	2.32	2.20
18	1.69	1.37	2.07	1.98	2.28	2.17
20	1.56	1.28	2.05	1.95		2.14
25	1.18	1.01	1.90	1.92		2.09
30	0.84	0.83	1.68	1.89		2.06
40	0.73	0.77	1.44	1.74		
50	0.66	0.74	1.15	1.56		
60			0.82	1.39		
80				1.04		
100				0.84		

* Field maximum moisture content determined by artificial wetting.
** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

Table H1 (Continued)

Rockford, Wash., Couse, Wheat

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0					2.64	2.12
1					2.50	2.08
2	2.06**	1.30**	1.84**	1.78**	2.40	2.05
3	1.90	1.28	1.82	1.76	2.30	2.03
4	1.80	1.27	1.80	1.73	2.21	2.01
5	1.74	1.26	1.78	1.71	2.11	1.98
6	1.68	1.24	1.76	1.69	2.00	1.96
7	1.63	1.22	1.73	1.66	1.94	1.93
8	1.58	1.20	1.71	1.64	1.91	1.91
9	1.52	1.18	1.67	1.61	1.88	1.88
10	1.45	1.17	1.64	1.59	1.86	1.86
12	1.35	1.13	1.55	1.54	1.81	1.81
14	1.23	1.08	1.44	1.50	1.77	1.76
16	1.13	1.04	1.36	1.46	1.74	
18	1.00	0.99	1.26	1.40	1.70	
20	0.88	0.95	1.16	1.35	1.65	
25	0.68	0.91	0.96	1.24		
30	0.55	0.84	0.63			
40	0.43	0.81				
50						
60						
80						
100						
150						
200						

Rockford, Wash., Caldwell

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	3.18		3.18	3.36	3.18	3.36
1	2.94		3.14	3.28	3.16	3.32
2	2.82	2.64**	3.12	3.20	3.14	3.28
3	2.72	2.60	3.10	3.10	3.12	3.24
4	2.62	2.56	3.07	3.01	3.10	3.20
5	2.52	2.53	3.0	2.96	3.08	3.16
6	2.43	2.50	3.02	2.92	3.06	3.10
7	2.34	2.46	3.00	2.88	3.04	3.04
8	2.25	2.42	2.98	2.84	3.02	3.0
9	2.17	2.39	2.95	2.80	3.00	2.96
10	2.10	2.35	2.93	2.74	2.98	2.92
12	1.96	2.28	2.88	2.66	2.94	2.85
14	1.83	2.20	2.84	2.61	2.91	2.82
16	1.71	2.13	2.79	2.58	2.88	
18	1.55	2.05	2.76	2.55	2.84	
20	1.40	1.97	2.72	2.51	2.80	
25	1.11	1.74	2.63	2.45	2.74	
30	0.92	1.20	2.55	2.39	2.67	
40	0.64	1.00	2.38		2.56	
50	0.55	0.89	2.18		2.45	
60		0.78	1.99		2.36	
80		0.75	1.62		2.20	
100			1.31			
150						
200						

Rockford, Wash., Thatuna, Wheat

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0					2.89	3.08
1					2.84	3.06
2	2.20**	2.10**	2.35**	2.45**	2.79	3.03
3	2.10	2.01	2.30	2.43	2.72	3.00
4	2.00	1.99	2.25	2.42	2.65	2.97
5	1.93	1.97	2.20	2.40	2.59	2.94
6	1.88	1.95	2.12	2.39	2.52	2.90
7	1.84	1.93	2.04	2.38	2.46	2.86
8	1.78	1.91	1.99	2.36	2.39	2.82
9	1.73	1.89	1.94	2.34	2.30	2.79
10	1.66	1.87	1.89	2.32	2.26	2.76
12	1.60	1.85	1.85	2.30	2.18	2.69
14	1.50	1.80	1.78	2.26	2.10	2.6
16	1.36	1.75	1.71	2.21	2.03	2.55
18	1.23	1.70	1.66	2.16	1.97	2.49
20	1.10	1.63	1.61	2.10	1.89	2.42
25	0.97	1.56	1.56	2.04		
30	0.85	1.43	1.52	1.99		
40	0.72	1.27		1.85		
50	0.67	1.17		1.75		
60		1.09				
80						
100						
150						
200						

Rockford, Wash., Thatuna, Fallow

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0					2.89	3.08
1					2.85	3.04
2	2.40**	2.04**	2.60**	2.48**	2.82	3.00
3	2.30	2.00	2.54	2.46	2.80	2.96
4	2.20	1.97	2.45	2.43	2.77	2.93
5	2.10	1.94	2.39	2.40	2.74	2.90
6	2.00	1.92	2.34	2.38	2.72	2.87
7	1.90	1.90	2.30	2.35	2.68	2.85
8	1.80	1.89	2.26	2.33	2.66	2.83
9	1.72	1.87	2.22	2.31	2.62	2.80
10	1.65	1.86	2.19	2.29	2.58	2.76
12	1.58	1.82	2.12	2.24	2.52	2.70
14	1.53	1.80	2.04	2.20	2.45	2.64
16	1.47	1.78	1.98	2.16	2.38	2.58
18	1.43	1.75	1.87	2.11	2.29	2.51
20	1.39	1.72	1.85	2.06	2.21	2.43
25	1.32	1.67	1.72	1.95	2.00	
30		1.61	1.50	1.75		
40		1.57	1.33	1.65		
50						
60						
80						
100						
150						
200						

Tanbark Flat, Calif., Tanbark, Chaparral

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.96	1.56	No transition data		1.96	1.56
1	1.78	1.50			1.78	1.50
2	1.70	1.47			1.70	1.47
3	1.61	1.44			1.61	1.44
4	1.55	1.40			1.55	1.40
5	1.50	1.37			1.50	1.37
6	1.46	1.34			1.46	1.34
7	1.42	1.31			1.42	1.31
8	1.38	1.29			1.38	1.29
9	1.34	1.26			1.34	1.26
10	1.31	1.24			1.31	1.24
12	1.26	1.19			1.26	1.19
14	1.21	1.15			1.21	1.15
16	1.15	1.11			1.15	1.11
18	1.10	1.07			1.10	1.07
20	1.07	1.03			1.07	1.03
25	0.98	0.94			0.98	0.94
30	0.90	0.88			0.90	0.88
40	0.73	0.78			0.76	0.78
50	0.59	0.68			0.69	0.68
60	0.49	0.60			0.65	0.66
80	0.38	0.49			0.60	0.50
100	0.29	0.42				0.45
150	0.18	0.36				
200						

Tanbark Flat, Calif., Tanbark, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.55	1.78	No transition data		1.55	1.78
1	1.48	1.73			1.50	1.76
2	1.40	1.70			1.45	1.74
3	1.35	1.68			1.40	1.72
4	1.31	1.66			1.34	1.69
5	1.26	1.64			1.29	1.66
6	1.20	1.62			1.24	1.64
7	1.15	1.60			1.19	1.61
8	1.10	1.59			1.14	1.59
9	1.06	1.57			1.10	1.57
10	1.01	1.56			1.06	1.55
12	0.92	1.53			0.96	1.51
14	0.85	1.50			0.88	1.47
16	0.76	1.46			0.80	1.44
18	0.71	1.43			0.74	1.41
20	0.67	1.40			0.69	1.39
25	0.61	1.32			0.60	1.34
30	0.57	1.25			0.57	1.29
40	0.52	1.15			0.52	1.20
50	0.46	1.06			0.49	1.12
60	0.42	0.98				1.06
80	0.37	0.87				0.93
100	0.33	0.77				0.82
150		0.58				0.62
200		0.46				

Tanbark Flat, Calif., Sunflower

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.63	2.54	No transition data		2.63	2.54
1	2.28	2.04			2.28	2.04
2	2.00	1.94			2.00	1.94
3	1.83	1.89			1.83	1.89
4	1.70	1.85			1.72	1.78
5	1.60	1.80			1.70	1.74
6	1.52	1.76			1.68	1.71
7	1.45	1.73			1.65	1.68
8	1.38	1.71			1.60	1.67
9	1.32	1.68			1.56	1.66
10	1.25	1.66			1.54	1.65
12	1.20	1.60			1.51	1.63
14	1.14	1.56			1.48	1.61
16	1.10	1.49			1.44	1.59
18	1.05	1.44			1.38	1.57
20	1.01	1.37			1.32	1.55
25	0.92	1.23			1.24	1.50
30	0.85	1.14			1.17	1.46
40	0.78	1.04			1.02	1.34
50	0.74	0.98			0.86	1.30
60	0.70	0.94			0.80	1.29
80						
100						
150						
200						

Tanbark Flat, Calif. Unconfined Lysimeter A

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.33	2.20	No transition data		2.33	2.20
1	2.28	2.13			2.23	2.15
2	2.20	2.09			2.15	2.10
3	2.12	2.03			2.08	2.07
4	2.06	1.96			2.02	2.04
5	2.00	1.91			1.97	2.00
6	1.95	1.87			1.92	1.97
7	1.90	1.83			1.87	1.94
8	1.86	1.80			1.83	1.91
9	1.82	1.76			1.80	1.89
10	1.78	1.73			1.77	1.86
12	1.70	1.68			1.71	1.82
14	1.6	1.62			1.65	1.78
16	1.54	1.56			1.60	1.75
18	1.46	1.52			1.55	1.72
20	1.39	1.47			1.50	1.68
25	1.22	1.36			1.39	1.61
30	1.06	1.26			1.29	1.55
40	0.88	1.08				
50	0.75	0.93				
60	0.64	0.84				
80	0.51	0.69				
100	0.48	0.60				
150	0.48	0.52				
200						

Tanbark Flat, Calif. Unconfined Lysimeter B

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.88	1.87	No transition data		1.88	1.87
1	1.84	1.84			1.82	1.83
2	1.80	1.81			1.79	1.81
3	1.76	1.78			1.75	1.78
4	1.72	1.75			1.72	1.76
5	1.66	1.71			1.68	1.73
6	1.62	1.68			1.65	1.71
7	1.58	1.65			1.62	1.69
8	1.53	1.61			1.60	1.67
9	1.49	1.57			1.58	1.65
10	1.44	1.54			1.55	1.63
12	1.37	1.48			1.51	1.59
14	1.28	1.42			1.46	1.56
16	1.18	1.37			1.42	1.53
18	1.09	1.32			1.38	1.50
20	1.00	1.28			1.34	1.47
25	0.85	1.16			1.26	1.40
30	0.74	1.06			1.17	1.34
40	0.61	0.91			1.04	1.22
50	0.53	0.81				
60	0.50	0.75				
80	0.48	0.64				
100	0.47	0.55				
150	0.47	0.46				
200						

(Continued)

** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

Table H1 (Continued)

Day	Tanbark Flat, Calif. Unconfined Lysimeter C: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Tanbark Flat, Calif. Unconfined Lysimeter D: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Tanbark Flat, Calif. Unconfined Lysimeter E: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.89	1.88	No transition data		1.89	1.88	2.15	2.03	No transition data		2.15	2.03	1.91	1.98	No transition data		1.91	1.98
1	1.82	1.86			1.86	1.85	2.09	2.00			2.10	1.96	1.87	1.91			1.88	1.96
2	1.76	1.84			1.81	1.82	2.04	1.96			2.05	1.91	1.82	1.86			1.84	1.92
3	1.72	1.80			1.76	1.80	1.99	1.93			1.99	1.87	1.78	1.81			1.81	1.88
4	1.68	1.78			1.72	1.78	1.94	1.90			1.94	1.84	1.72	1.76			1.78	1.85
5	1.65	1.75			1.69	1.76	1.89	1.88			1.90	1.80	1.68	1.71			1.74	1.82
6	1.62	1.73			1.67	1.74	1.83	1.85			1.85	1.77	1.63	1.67			1.71	1.79
7	1.59	1.70			1.65	1.73	1.78	1.82			1.81	1.74	1.59	1.62			1.68	1.75
8	1.56	1.68			1.63	1.71	1.72	1.78			1.77	1.72	1.54	1.58			1.65	1.72
9	1.53	1.66			1.61	1.70	1.66	1.76			1.73	1.71	1.49	1.55			1.62	1.68
10	1.50	1.62			1.59	1.68	1.60	1.73			1.70	1.69	1.44	1.50			1.60	1.65
12	1.43	1.58			1.56	1.66	1.50	1.67			1.65	1.66	1.36	1.43			1.54	1.58
14	1.38	1.53			1.52	1.63	1.40	1.62			1.61	1.64	1.27	1.34			1.49	1.52
16	1.32	1.49			1.50	1.61	1.30	1.56			1.58	1.61	1.20	1.27			1.43	1.46
18	1.26	1.44			1.48	1.59	1.21	1.51			1.56	1.59	1.12	1.21			1.38	1.40
20	1.20	1.39			1.45	1.57	1.13	1.46			1.53	1.56	1.05	1.16			1.33	1.34
25	1.06	1.27			1.39	1.52	1.01	1.32			1.46	1.52	0.90	1.04			1.19	1.20
30	0.92	1.14			1.33	1.47	0.93	1.18			1.41	1.50	0.79	0.94			1.05	1.05
40	0.71	0.90			1.22	1.39	0.80	0.95			1.32	1.46	0.68	0.81			0.81	0.81
50	0.59	0.74			1.12	1.32	0.72	0.85			1.24	1.43	0.61	0.75				
60	0.52	0.66			1.02		0.65	0.80					0.56	0.70				
80	0.45	0.55					0.56	0.74					0.49	0.65				
100	0.44	0.51					0.53	0.68					0.43	0.60				
150	0.43							0.62					0.34	0.54				
200																		

Day	Tanbark Flat, Calif. Confined Lysimeter 1: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Tanbark Flat, Calif. Confined Lysimeter 3: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Tanbark Flat, Calif. Confined Lysimeter 5: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.98	1.77	No transition data		1.98	1.77	2.22	2.10	No transition data		2.22	2.10	2.09	2.16	No transition data		2.09	2.16
1	1.90	1.74			1.87	1.75	2.04	2.02			2.16	2.08	1.98	2.11			2.05	2.13
2	1.80	1.69			1.80	1.74	1.90	1.94			2.11	2.06	1.90	2.06			2.01	2.11
3	1.74	1.66			1.73	1.72	1.76	1.88			2.08	2.04	1.80	2.02			1.96	2.09
4	1.70	1.64			1.67	1.71	1.62	1.83			2.04	2.02	1.71	1.96			1.90	2.07
5	1.66	1.62			1.62	1.70	1.55	1.77			2.00	2.00	1.62	1.92			1.85	2.05
6	1.62	1.60			1.57	1.69	1.49	1.72			1.97	1.98	1.53	1.87			1.81	2.03
7	1.57	1.59			1.53	1.68	1.42	1.68			1.93	1.96	1.44	1.82			1.76	2.01
8	1.54	1.57			1.50	1.67	1.36	1.64			1.90	1.94	1.38	1.77			1.72	1.99
9	1.51	1.56			1.48	1.65	1.30	1.60			1.87	1.92	1.34	1.72			1.68	1.96
10	1.48	1.54			1.45	1.64	1.25	1.56			1.84	1.90	1.29	1.68			1.64	1.94
12	1.42	1.51			[illegible]	1.62	1.16	1.49			1.76	1.86	1.21	1.56			1.57	1.90
14	1.37	1.48			1.36	1.60	1.07	1.45			1.70	1.82	1.12	1.43			1.52	1.86
16	1.32	1.46			1.31	1.58	0.99	1.40			1.62	1.78	1.05	1.34			1.45	1.82
18	1.28	1.43			1.27	1.56	0.93	1.35			1.56	1.74	0.98	1.24			1.39	1.79
20	1.23	1.41			1.23	1.54	0.89	1.31			1.50	1.71	0.92	1.18			1.33	1.75
25	1.14	1.35			1.15	1.48	0.81	1.20			1.35	1.61	0.82	1.00			1.20	1.67
30	1.06	1.31			1.07	1.44	0.75	1.12			1.23	1.54	0.74	0.91			1.08	1.59
40	0.93	1.23			0.93	1.38	0.66	1.00			1.00	1.42	0.63	0.80			0.84	1.45
50	0.82	1.15			0.80		0.60	[illegible]			0.90	1.31	0.55	0.74				1.32
60	0.74	1.08			0.69		0.55	0.89					0.49	0.68				
80	0.61	0.97					0.49	0.83					0.39	0.61				
100	0.55	0.90					0.45	0.80					0.34	0.55				
150	0.49	0.82					0.42	0.76						0.45				
200																		

Day	Tanbark Flat, Calif. Confined Lysimeter 9: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Tanbark Flat, Calif. Confined Lysimeter 19: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Tanbark Flat, Calif. Confined Lysimeter 24: Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.17	2.10	No transition data		2.17	2.10	1.99	2.01	No transition data		1.99	2.01	2.15	2.18	No transition data		2.15	2.18
1	2.10	2.07			2.13	2.07	1.92	1.96			1.92	1.98	2.10	2.14			2.14	2.14
2	2.04	2.04			2.08	2.04	1.84	1.91			1.84	1.92	2.08	2.11			2.10	2.09
3	2.00	2.01			2.04	2.01	1.78	1.86			1.78	1.88	2.01	2.08			2.06	2.05
4	1.96	1.99			2.00	1.99	1.72	1.81			1.72	1.84	1.97	2.04			2.05	2.01
5	1.92	1.96			1.95	1.96	1.65	1.76			1.67	1.81	1.92	2.01			2.00	1.98
6	1.88	1.93			1.91	1.93	1.59	1.70			1.64	1.78	1.86	1.98			1.96	1.95
7	1.83	1.91			1.86	1.91	1.54	1.66			1.61	1.76	1.82	1.95			1.94	1.92
8	1.79	1.88			1.82	1.89	1.47	1.61			1.59	1.73	1.78	1.92			1.90	1.89
9	1.74	1.85			1.78	1.86	1.42	1.56			1.56	1.71	1.73	1.89			1.87	1.86
10	1.70	1.82			1.74	1.84	1.36	1.53			1.54	1.69	1.67	1.86			1.84	1.84
12	1.62	1.77			1.66	1.79	1.26	1.46			1.50	1.66	1.55	1.81			1.78	1.79
14	1.53	1.72			1.59	1.75	1.16	1.38			1.46	1.62	1.44	1.74			1.72	1.74
16	1.45	1.66			1.51	1.70	1.09	1.30			1.42	1.59	1.34	1.69			1.66	1.70
18	1.36	1.61			1.44	1.60	1.03	1.23			1.39	1.56	1.25	1.64			1.60	1.67
20	1.28	1.56			1.37	[illegible]	0.98	1.16			1.35	1.53	1.16	1.58			1.54	1.63
25	1.08	1.42			1.24	1.50	0.89	1.02			1.26	1.45	0.92	1.44			1.38	1.54
30	0.90	1.28			1.14	1.41	0.82	0.92			1.18	1.38	0.74	1.32			1.26	1.45
40	0.70	0.99			0.97	1.24	0.70	0.79					0.59	1.07			0.95	1.29
50	0.61	0.84			0.86	1.11	0.60	0.73					0.53	0.88				1.13
60	0.54	0.75				1.01	0.52	0.69					0.48	0.76				
80	0.43	0.64					0.40	0.63					0.42	0.69				
100	0.35	0.56					0.37	0.56					0.36	0.64				
150		0.41					0.37	0.46						0.54				
200																		

(Continued)

Table H1 (Continued)

North Fork, Calif., North Fork, Forest

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.04	1.76	No transition data		2.04	1.76
1	2.01	1.73			2.01	1.74
2	1.96	1.70			1.98	1.72
3	1.91	1.66			1.95	1.69
4	1.87	1.63			1.92	1.65
5	1.82	1.60			1.89	1.63
6	1.77	1.57			1.86	1.61
7	1.74	1.53			1.83	1.60
8	1.70	1.50			1.80	1.58
9	1.67	1.47			1.78	1.56
10	1.63	1.45			1.75	1.54
12	1.56	1.40			1.70	1.50
14	1.49	1.34			1.66	1.46
16	1.43	1.30			1.62	1.42
18	1.37	1.25			1.58	1.38
20	1.31	1.21			1.54	1.34
25	1.17	1.10			1.45	1.26
30	1.04	1.00			1.37	1.20
40	0.80	0.84			1.37	1.10
50	0.58	0.69				
60	0.42	0.57				
80	0.29	0.45				
100	0.25	0.40				
150						
200						

North Fork, Calif., North Fork, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.53	1.55	No transition data		1.53	1.55
1	1.48	1.52			1.50	1.52
2	1.42	1.49			1.48	1.50
3	1.36	1.46			1.46	1.48
4	1.30	1.42			1.44	1.46
5	1.24	1.38			1.42	1.44
6	1.18	1.34			1.40	1.42
7	1.11	1.30			1.38	1.39
8	1.05	1.27			1.36	1.37
9	0.99	1.24			1.34	1.35
10	0.93	1.21			1.32	1.34
12	0.80	1.14			1.28	1.30
14	0.68	1.07			1.25	1.26
16	0.58	1.01			1.21	1.23
18	0.54	0.96			1.17	1.20
20	0.52	0.93			1.12	1.18
25	0.47	0.85			1.02	1.11
30	0.43	0.79			0.96	1.05
40	0.35	0.70				0.98
50	0.30	0.66				
60	0.27	0.64				
80	0.23	0.60				
100		0.57				

North Fork, Calif., Bass Lake, Forest

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.05	1.92	No transition data		2.05	1.92
1	1.97	1.86			2.03	1.90
2	1.89	1.81			2.00	1.88
3	1.83	1.77			1.96	1.86
4	1.76	1.73			1.93	1.84
5	1.70	1.70			1.91	1.82
6	1.65	1.68			1.89	1.80
7	1.61	1.65			1.86	1.78
8	1.56	1.62			1.84	1.76
9	1.53	1.59			1.81	1.74
10	1.50	1.56			1.79	1.73
12	1.44	1.52			1.74	1.70
14	1.40	1.48			1.70	1.66
16	1.35	1.43			1.66	1.64
18	1.31	1.40			1.62	1.60
20	1.27	1.36			1.59	1.58
25	1.16	1.27			1.53	1.52
30	1.08	1.18			1.49	1.48
40	0.93	1.02			1.45	
50	0.82	0.90				
60	0.73	0.81				
80	0.61	0.66				
100	0.53	0.58				
150	0.44	0.51				

North Fork, Calif., Bass Lake, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.15	2.20	No transition data		2.15	2.20
1	2.09	2.13			2.09	2.16
2	1.98	2.06			2.06	2.13
3	1.91	2.00			2.02	2.10
4	1.85	1.96			1.99	2.08
5	1.80	1.93			1.95	2.05
6	1.75	1.90			1.91	2.03
7	1.69	1.88			1.88	2.00
8	1.63	1.85			1.85	1.98
9	1.58	1.82			1.83	1.95
10	1.53	1.79			1.81	1.93
12	1.42	1.73			1.76	1.88
14	1.31	1.68			1.72	1.84
16	1.23	1.63			1.68	1.80
18	1.15	1.57			1.65	1.77
20	1.10	1.51			1.63	1.73
25	1.02	1.38			1.58	1.67
30	0.94	1.29			1.53	1.62
40	0.86	1.17				
50	0.80	1.10				
60	0.74	1.04				
80	0.67	0.98				
100	0.65	0.94				
150	0.62	0.67				
200						

Grand Junction, Colo. East Grand Mesa, Herb.

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.25	2.10	No winter data	
1			2.14	2.03		
2	1.41**	1.36**	2.04	1.97		
3	1.36	1.31	1.96	1.92		
4	1.32	1.27	1.90	1.87		
5	1.28	1.23	1.85	1.84		
6	1.24	1.20	1.80	1.81		
7	1.20	1.17	1.75	1.78		
8	1.16	1.14	1.18†	1.04†		
9	1.12	1.12	1.14	1.02		
10	1.08	1.10	1.10	1.00		
12	1.00	1.06	1.02	0.98		
14	0.94	1.02	0.96	0.95		
16	0.88	0.99	0.90	0.92		
18	0.83	0.96	0.85	0.89		
20	0.79	0.92	0.81	0.86		
25	0.73	0.82	0.75	0.79		
30			0.69	0.74		
40			0.64	0.71		
50				0.68		

Grand Junction, Colo. East Grand Mesa, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.16	2.06	No winter data	
1			2.02	99		
2	1.74**	1.67**	1.90	1.94		
3	1.66	1.66	1.83	1.90		
4	1.63	1.65	1.76	1.88		
5	1.60	1.64	1.70	1.86		
6	1.58	1.63	1.66	1.84		
7	1.56	1.62	1.64	1.82		
8	1.55	1.01	1.62	1.80		
9	1.53	1.60	1.60	1.78		
10	1.51	1.60	1.58	1.76		
12	1.48	1.58	1.55	1.72		
14	1.45	1.56	1.52	1.68		
16	1.41	1.54	1.49	1.64		
18	1.39	1.52	1.46	1.62		
20	1.37	1.50	1.44	1.61		
25	1.32	1.45	1.39	1.59		
30	1.28	1.40	1.34	1.57		
40	1.18	1.34	1.27	1.55		
50	1.08	1.26				
60	0.99					
80	0.89					

Grand Junction, Colo. West Grand Mesa, Herb.

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.76	2.53	No winter data	
1			2.62	2.45		
2	2.06**	1.96**	2.51	2.37		
3	2.00	1.90	2.41	2.30		
4	1.94	1.85	2.33	2.24		
5	1.88	1.80	2.26	2.19		
6	1.82	1.75	2.20	2.14		
7	1.76	1.70	2.15	2.10		
8	1.70	1.66	2.10	2.06		
9	1.64	1.63	2.06	2.02		
10	1.58	1.60	2.02	1.98		
12	1.46	1.54	1.94	1.90		
14	1.35	1.49	1.88	1.84		
16	1.25	1.43	1.82	1.78		
18	1.15	1.38	1.76	1.74		
20	1.05	1.32	1.22†	0.81†		
25	0.86	1.22	1.06	0.78		
30	0.76	1.16	0.91	0.76		
40	0.66	0.93	0.75	0.73		
50		0.83	0.69	0.71		
60		0.73				
80						
100						
200						

Grand Junction, Colo. West Grand Mesa, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.67	2.55	No winter data	
1			2.54	2.47		
2	1.98**	1.86**	2.42	2.40		
3	1.90	1.86	2.31	2.34		
4	1.84	1.85	2.21	2.29		
5	1.80	1.85	2.12	2.24		
6	1.76	1.84	2.04	2.19		
7	1.72	1.84	1.98	2.14		
8	1.70	1.84	1.93	2.10		
9	1.69	1.83	1.89	2.06		
10	1.68	1.83	1.85	2.03		
12	1.65	1.82	1.80	1.97		
14	1.66	1.81	1.77	1.93		
16	1.59	1.80	1.74	1.91		
18	1.57	1.80	1.72	1.89		
20	1.55	1.79	1.70	1.88		
25	1.50	1.77	1.65	1.86		
30	1.45	1.75	1.61	1.85		
40	1.35	1.71	1.56	1.82		
50	1.25	1.67	1.51	1.80		
60	1.15	1.63				
80	1.01	1.55				
100	0.91	1.50				

Grand Junction, Colo. Spruce

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	3.76	3.46			No winter data	
1	3.71	2.41				
2	3.67	3.36	1.86**	1.35**		
3	3.63	3.32	1.78	1.32		
4	3.58	3.27	1.72	1.30		
5	3.54	3.23	1.66	1.28		
6	3.50	3.18	1.60	1.26		
7	3.47	3.14	1.55	1.24		
8	3.44	3.09	1.50	1.23		
9	3.40	3.04	1.45	1.22		
10	3.35	2.99	1.42	1.21		
12	3.23	2.89	1.36	1.19		
14	3.12	2.78	1.30	1.18		
16	3.01	2.69	1.26	1.16		
18	2.91	2.60	1.22	1.15		
20	2.80	2.51	1.20	1.14		
25	2.50	2.30	1.15	1.12		
30	2.20	2.09	1.11	1.11		
40	1.58	1.64	1.09	1.08		
50		1.20				

(Continued)

** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

† No data collected between the wet and dry portions of this depletion column. Days from field maximum are not known for the dry portion of column.

Table H1 (Continued)

Grand Junction, Colo., Bog

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	3.55	3.78			No winter data	
1	3.50	3.74				
2	3.46	3.70	3.06**	3.25**		
3	3.42	3.66	3.02	3.22		
4	3.38	3.62	2.98	3.19		
5	3.34	3.58	2.94	3.16		
6	3.30	3.54	2.90	3.13		
7	3.26	3.50	2.86	3.10		
8	3.22	3.47	2.82	3.07		
9	3.18	3.44	2.78	3.04		
10	3.14	3.41	2.74	3.01		
12	3.06	3.35	2.66	2.95		
14	2.98	3.29	2.58	2.89		
16	2.90	3.23	2.50	2.83		
18	2.82	3.17	2.42	2.78		
20	2.74	3.11	2.34	2.74		
25		2.96	2.20	2.64		
30			2.10	2.54		
40			1.90	2.34		
50						
60						
80						
100						
150						
200						

Grand Junction, Colo., Aspen, 1

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			3.00	2.09	No winter data	
1			2.93	2.05		
2	1.64**	1.47**	2.86	2.01		
3	1.59	1.44	2.79	1.97		
4	1.55	1.40	2.72	1.94		
5	1.51	1.36	2.65	1.91		
6	1.47	1.32	2.58	1.88		
7	1.43	1.28	2.52	1.86		
8	1.39	1.24	2.46	1.83		
9	1.34	1.20	2.40	1.80		
10	1.29	1.17	2.35	1.77		
12	1.20	1.11	2.25	1.72		
14	1.12	1.05	2.15	1.66		
16	1.06	0.98	2.05	1.60		
18	1.00	0.91	1.95	1.55		
20	0.94	0.85	1.85	1.50		
25	0.85	0.77	1.61	1.38		
30	0.80	0.71	1.42	1.27		
40	0.70	0.61	0.97†	0.73†		
50		0.51	0.84	0.64		
60			0.79	0.60		
80			0.72	0.55		
100						
150						
200						

Grand Junction, Colo., Oakbrush, 1

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.21	1.66	No winter data	
1			2.15	1.63		
2	1.05**	1.16**	2.09	1.60		
3	1.02	1.13	2.03	1.58		
4	1.00	1.10	1.97	1.56		
5	0.97	1.08	1.91	1.54		
6	0.94	1.06	1.85	1.52		
7	0.92	1.03	1.80	1.50		
8	0.89	1.01	1.75	1.48		
9	0.87	0.99	1.70	1.46		
10	0.85	0.97	1.65	1.44		
12	0.80	0.93	1.55	1.40		
14	0.76	0.89	1.46	1.36		
16	0.72	0.85	1.38	1.32		
18	0.68	0.81	1.30	1.28		
20	0.64	0.77	1.22	1.24		
25	0.55	0.69	1.03	1.14		
30	0.49	0.62	0.90	1.04		
40	0.39	0.52	0.65†	0.55†		
50			0.52	0.45		
60			0.44			
80						
100						
150						
200						

Grand Junction, Colo., Pinon-Juniper

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0					1.94	1.63
1					1.92	1.62
2	0.81**	1.07**	1.58**	1.56**	1.90	1.61
3	0.78	1.06	1.55	1.54	1.88	1.60
4	0.76	1.04	1.53	1.52	1.86	1.60
5	0.74	1.03	1.50	1.50	1.84	1.59
6	0.72	1.02	1.48	1.49	1.82	1.58
7	0.70	1.01	1.45	1.47	1.80	1.58
8	0.68	1.00	1.42	1.45	1.78	1.57
9	0.67	0.99	1.40	1.44	1.76	1.56
10	0.65	0.98	1.37	1.42	1.74	1.56
12	0.63	0.96	1.32	1.39	1.70	1.54
14	0.61	0.94	1.27	1.37	1.68	1.53
16	0.59	0.92	1.22	1.35	1.66	1.52
18	0.57	0.90	1.18	1.33	1.64	1.51
20	0.55	0.88	1.14	1.31	1.62	1.50
25	0.50	0.83	1.04	1.27	1.59	1.48
30	0.45	0.78	0.94	1.22	1.56	1.45
40	0.38	0.72	0.76	1.12	1.51	1.40
50		0.67	0.65	1.03		1.36
60			0.56	0.94		1.32
80			0.45	0.81		1.25
100				0.71		
150				0.61		
200						

Cedaredge, Colo., Aspen, 3

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	2.78		2.78	2.39	No winter data	
1	2.65		2.70	2.35		
2	2.52	2.18**	2.63	2.32		
3	2.43	2.13	2.57	2.29		
4	2.36	2.08	2.52	2.26		
5	2.29	2.03	2.47	2.23		
6	2.22	1.98	2.42	2.20		
7	2.15	1.93	2.37	2.17		
8	2.08	1.89	2.32	2.14		
9	2.01	1.85	2.28	2.11		
10	1.94	1.81	2.24	2.08		
12	1.82	1.73	2.16	2.02		
14	1.70	1.65	2.08	1.96		
16	1.58	1.57	2.00	1.90		
18	1.46	1.50	1.92	1.84		
20	1.36	1.44	1.84	1.78		
25	1.15	1.29	1.64	1.63		
30	1.09	1.16	1.48	1.48		
40	1.04		1.23	1.27		
50			1.08	1.17		
60						
80						
100						
150						
200						

Cedaredge, Colo., Aspen, 2

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			3.14	2.38	No winter data	
1			3.06	2.31		
2	2.34**	1.69**	2.98	2.24		
3	2.24	1.62	2.91	2.18		
4	2.15	1.56	2.84	2.12		
5	2.06	1.50	2.77	2.07		
6	1.97	1.45	2.71	2.02		
7	1.86	1.40	2.65	1.97		
8	1.78	1.36	2.59	1.93		
9	1.71	1.32	2.53	1.89		
10	1.64	1.29	2.47	1.85		
12	1.57	1.23	2.35	1.78		
14	1.51	1.19	2.23	1.72		
16	1.46	1.15	2.11	1.66		
18	1.42	1.11	2.00	1.60		
20	1.38	1.08	1.91	1.56		
25	1.27	1.02	1.71	1.46		
30	1.19		1.57	1.36		
40	1.09		1.34	1.16		
50			1.20	1.07		
60			1.16	1.02		
80						
100						
150						
200						

Cedaredge, Colo., Aspen, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			3.08	2.46	No winter data	
1			3.03	2.42		
2	2.96**	2.31**	2.98	2.39		
3	2.90	2.25	2.94	2.36		
4	2.84	2.19	2.90	2.33		
5	2.79	2.14	2.86	2.32		
6	2.74	2.09	2.82	2.27		
7	2.69	2.05	2.78	2.24		
8	2.64	2.01	2.75	2.21		
9	2.59	1.97	2.72	2.18		
10	2.54	1.94	2.69	2.15		
12	2.46	1.89	2.63	2.09		
14	2.39	1.84	2.57	2.03		
16	2.31	1.78	2.51	1.97		
18	2.24	1.73	2.45	1.92		
20	2.18	1.68	2.40	1.88		
25	2.03	1.58	2.30	1.82		
30	1.88	1.49	2.22	1.78		
40	1.72	1.37	2.12	1.73		
50	1.55	1.27	2.02			
60	1.44					
80						
100						
150						
200						

Cedaredge, Colo., Oakbrush, 2

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.82	2.20	No winter data	
1			2.75	2.15		
2	2.13**	1.62**	2.68	2.10		
3	2.04	1.58	2.62	2.06		
4	1.95	1.54	2.56	2.02		
5	1.86	1.51	2.50	1.98		
6	1.77	1.48	2.44	1.94		
7	1.69	1.45	2.38	1.90		
8	1.61	1.42	2.32	1.87		
9	1.54	1.39	2.26	1.84		
10	1.48	1.36	2.20	1.81		
12	1.38	1.30	2.10	1.76		
14	1.30	1.24	2.00	1.72		
16	1.23	1.18	1.90	1.68		
18	1.17	1.12	1.80	1.64		
20	1.11	1.06	1.70	1.60		
25	0.98	0.93	1.50	1.50		
30	0.88	0.82	1.35	0.95†		
40			1.05	0.82		
50			0.88	0.76		
60			0.81	0.71		
80						
100						
150						
200						

Cedaredge, Colo., Oakbrush, Bare

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0			2.55	2.22	No winter data	
1			2.46	2.17		
2	2.02**	1.83**	2.37	2.12		
3	1.96	1.79	2.29	2.07		
4	1.90	1.75	2.21	2.02		
5	1.84	1.72	2.13	1.97		
6	1.78	1.69	2.07	1.92		
7	1.73	1.66	2.01	1.88		
8	1.68	1.63	1.96	1.84		
9	1.63	1.60	1.91	1.80		
10	1.58	1.57	1.86	1.77		
12	1.48	1.51	1.76	1.72		
14	1.38	1.46	1.66	1.68		
16	1.29	1.42	1.56	1.64		
18	1.21	1.38	1.47	1.60		
20	1.14	1.34	1.39	1.57		
25	1.00	1.24	1.26	1.49		
30	0.90	1.17	1.16	1.42		
40	0.76	1.04	0.98	1.27		
50	0.70			1.12		
60				1.02		
80						
100						
150						
200						

(Continued)

** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

† No data collected between the wet and dry portions of this depletion column. Days from field maximum are not known for the dry portion of column.

Table H1 (Continued)

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
	Delta, Colo., Escalante, Herb.						Delta, Colo., Escalante, Bare						Delta, Colo., Badlands					
0	2.42*	1.72*	2.42*	1.72*	2.42*	1.72*	1.85*	1.85*	1.85*	1.85*	1.85*	1.85*	2.25*	1.49*	2.25*	1.49*	2.25*	1.49*
1																		
2	0.69**	0.76**	1.45**	1.10**	1.36**	1.07**	0.55**	0.72**	0.93**	0.74**	0.81**	0.72**	0.57**	0.72**	1.22**	0.76**	1.02**	0.75**
3	0.68	0.75	1.44	1.09	1.36	1.07	0.54	0.72	0.92	0.74	0.80	0.71	0.56	0.72	1.21	0.76	1.01	0.75
4	0.67	0.75	1.43	1.08	1.35	1.07	0.53	0.71	0.91	0.73	0.80	0.71	0.56	0.71	1.20	0.76	1.00	0.75
5	0.66	0.74	1.42	1.07	1.35	1.07	0.52	0.71	0.90	0.73	0.79	0.71	0.55	0.71	1.19	0.75	0.99	0.75
6	0.66	0.74	1.41	1.06	1.34	1.06	0.51	0.70	0.89	0.72	0.79	0.71	0.54	0.70	1.18	0.75	0.98	0.75
7	0.65	0.73	1.40	1.06	1.34	1.06	[illegible]	0.70	0.88	0.72	0.78	0.71	0.54	0.70	1.17	0.75	0.98	0.75
8	0.64	0.73	1.39	1.05	1.34	1.06	0.49	0.69	0.87	0.71	0.78	0.71	0.53	0.69	1.16	0.75	0.97	0.75
9	0.64	0.72	1.38	1.04	1.33	1.06	0.48	0.69	0.86	0.71	0.77	0.71	0.52	0.69	1.15	0.74	0.96	0.75
10	0.63	0.72	1.37	1.03	1.33	1.06	0.47	0.68	0.85	0.70	0.77	0.70	0.52	0.68	1.14	0.74	0.96	0.75
12	0.61	0.71	1.35	1.02	1.32	1.05	0.45	0.67	0.83	0.69	0.76	0.70	0.51	0.67	1.12	0.74	0.94	0.74
14	0.60	0.70	1.33	1.00	1.32	1.05	0.44	0.66	0.81	0.68	0.75	0.70	0.50	0.66	1.10	0.73	0.93	0.74
16	0.58	0.69	1.31	0.98	1.31	1.05	0.42	0.65	0.79	0.67	0.74	0.70	0.49	0.65	1.08	0.73	0.92	0.74
18	0.57	0.68	1.29	0.97	1.30	1.04	0.41	0.64	0.77	0.66	0.74	0.69	0.48	0.64	1.06	0.72	0.91	0.74
20	0.56	0.67	1.27	0.96	1.30	1.04	0.40	0.64	0.75	0.65	0.73	0.69	0.47	0.63	1.04	0.72	0.90	0.73
25	0.52	0.64	1.22	0.92	1.28	1.03	0.38	0.62	0.70	0.63	0.71	0.69	0.44	0.61	0.99	0.70	0.88	0.73
30	0.49		1.17	0.89	1.26	1.03	0.35	0.60	0.65	0.60	0.70	0.69	0.42	0.57	0.94	0.69	0.87	0.72
40			1.07	0.82	1.23	1.02		0.57	0.59	0.57	0.66	0.68	0.38		0.84	0.67	0.83	0.71
50			0.97	0.76	1.21	1.01			0.54	0.55	0.64				0.77	0.64	0.80	0.70
60			0.87	0.71	1.18	1.00			0.49		0.63				0.71	0.62	0.77	0.69
80			0.67	0.63	1.13	0.98			0.39		0.60				0.59	0.58	0.70	0.67
100			0.53	0.58	1.08	0.96			0.35		0.57				0.47		0.64	0.65
150			0.28															
200																		
	Albuquerque, N. Mex., Pine Flat, Herb.						Albuquerque, N. Mex., Pine Flat, Forest						Albuquerque, N. Mex., Pine Flat, Bare					
0	2.35*	2.15*	2.35*	2.15*	2.35*	2.15*	2.51*	2.36*	2.51*	2.36*	2.51*	2.36*	2.35*	2.15*	2.35*	2.15*	2.35*	2.15*
1																		
2	1.78**	0.91**	2.15**	2.00**	1.97**	1.73**	2.14**	1.47**	2.25**	1.24**	2.25**	1.78**	1.70**	1.52**	1.95**	2.13**	1.86**	2.01**
3	1.70	0.90	2.10	1.99	1.95	1.73	2.11	1.46	2.23	1.28	2.24	1.78	1.69	1.51	1.86	2.13	1.85	2.01
4	1.62	0.88	2.07	1.98	1.93	1.73	2.07	1.45	2.22	1.24	2.22	1.78	1.69	1.50	1.80	2.12	1.84	2.01
5	1.52	0.87	2.04	1.98	1.91	1.73	2.03	1.42	2.19	1.23	2.21	1.77	1.68	1.49	1.76	2.11	1.83	2.01
6	1.33	0.86	2.00	1.97	1.90	1.73	1.98	1.40	2.17	1.23	2.19	1.77	1.67	1.48	1.72	2.10	1.82	2.01
7	1.15	0.85	1.97	1.97	1.88	1.73	1.92	1.36	2.15	1.22	2.18	1.76	1.66	1.47	1.69	2.10	1.81	2.00
8	1.04	0.84	1.93	1.96	1.86	1.73	1.83	1.32	2.11	1.22	2.17	1.75	1.65	1.46	1.68	2.10	1.80	2.00
9	0.93	0.83	1.90	1.95	1.84	1.73	1.73	1.27	2.08	1.21	2.15	1.75	1.65	1.46	1.67	2.09	1.80	2.00
10	0.86	0.82	1.87	1.94	1.83	1.73	1.40	1.23	2.03	1.21	2.14	1.73	1.62	1.45	1.66	2.09	1.79	2.00
12	0.73	0.81	1.85	1.93	1.79	1.72	1.26	1.18	1.92	1.21	2.13	1.72	1.60	1.43	1.65	2.08	1.79	2.00
14	0.63	0.80	1.79	1.91	1.75	1.72	1.17	1.16	1.76	1.20	2.11	1.68	1.56	1.42	1.65	2.07	1.78	1.99
16	0.56	0.79	1.74	1.89	1.71	1.71	1.09	1.14	1.63	1.20		1.65	1.53		1.64	2.07	1.77	1.99
18	0.53	0.78	1.68	1.88	1.69	1.71	1.02	1.12	1.52	1.20		1.61	1.49			2.07		
20	0.52	0.77	1.51	1.87	1.67	1.70	0.95	1.10	1.43	1.19		1.56	1.45			2.07		
25			1.32	1.71	1.64	1.66	0.85		1.25	1.18		1.42	1.34			2.07		
30			0.87	1.39	1.50		0.76		1.10	1.17		1.32	1.25					
40			0.61	1.14					0.98	1.15		1.25	1.12					
50			0.53	0.84					0.87	1.12		1.23	1.04					
60				0.77					0.76	1.10			1.02					
80																		
100																		
150																		
200																		
	Albuquerque, N. Mex., San Antonito, Herb.						Albuquerque, N. Mex., Sandia Mesa, Herb.						Albuquerque, N. Mex., Flood Plain					
0	1.85*	1.95*	1.85*	1.95*	1.85*	1.95*	1.54*	1.91*	1.54*	1.91*	1.54*	1.91*	3.00*	2.46*	3.00*	2.46*	3.00*	2.46*
1																		
2	0.84**	0.96**	1.63**	1.82**	1.35**	1.71**	0.60**	0.75**	0.85**	0.78**	0.90**	0.85**	1.45**	1.69**	2.41**	1.97**	2.65**	1.94**
3	0.77	0.93	1.57	1.78	1.32	1.70	0.56	0.73	0.83	0.77	0.87	0.83	1.45	1.69	2.39	1.97	2.63	1.94
4	0.71	0.92	1.51	1.75	1.30	1.69	0.53	0.70	0.80	0.76	0.85	0.81	1.45	1.69	2.37	1.97	2.62	1.94
5	0.65	0.88	1.44	1.70	1.27	1.68	0.50	0.68	0.79	0.75	0.82	0.80	1.45	1.69	2.35	1.96	2.61	1.93
6	0.60	0.85	1.39	1.65	1.26	1.67	0.48	0.67	0.77	0.75	0.80	0.79	1.44	1.68	2.32	1.96	2.60	1.93
7	0.55	0.83	1.32	1.63	1.24	1.66	0.45	0.65	0.75	0.74	0.77	0.77	1.44	1.68	2.30	1.96	2.58	1.93
8	0.53	0.80	1.25	1.60	1.22	1.65	0.44	0.64	0.74	0.73	0.76	0.76	1.44	1.68	2.27	1.96	2.56	
9	0.52	0.80	1.21	1.57	1.20	1.64	0.43	0.62	0.73	0.72	0.75	0.76	1.44	1.68	2.25	1.96	2.55	
10	0.51	0.79	1.15	1.55	1.20	1.63	0.42	0.61	0.71	0.71	0.74	0.75	1.44	1.67	2.24		2.53	
12	0.49	0.78	1.06	1.50	1.17	1.61	0.40	0.58	0.68	0.70	0.70	0.75	1.44	1.67	2.20		2.50	
14	0.47	0.77	0.98	1.45	1.15	1.60	0.40	0.55	0.62	0.67	0.68	0.73			2.15		2.45	
16	0.46	0.77	0.90	1.41	1.13	1.57	0.40	0.51	0.57	0.66	0.66	0.73			2.10		2.40	
18	0.45	0.76	0.84	1.36	1.10	1.56	0.39	0.48	0.53	0.65	0.65	0.72					2.35	
20	0.44		0.78	1.33	1.07	1.55		0.46	0.49	0.63	0.63						2.32	
25			0.64	1.18	0.90	1.50		0.41	0.42	0.55	0.58						2.23	
30			0.55	1.03	0.80	1.46		0.39		0.49	0.54						2.15	
40			0.46	0.83	0.78	1.37				0.45							2.04	
50			0.43	0.77														
60																		
80																		
100																		
150																		
200																		

(Continued)

* Field maximum moisture content determined by artificial wetting.

** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

Table H. Continued

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
	Albuquerque, N. Mex., Jemez Dam					
0	1.44*	2.05*	1.44*	2.05*	1.44*	2.05*
1						
2	0.65**	0.62**	1.15**	1.16**	1.10**	1.20**
3	0.60	0.62	1.13	1.16	1.09	1.20
4	0.57	0.62	1.11	1.15	1.08	1.20
5	0.55	0.62	1.08	1.15	1.07	1.20
6	0.53	0.62	1.07	1.14	1.06	1.20
7	0.51	0.62	1.05	1.14	1.05	1.19
8	0.49		1.02	1.13	1.04	1.19
9	0.47		0.99	1.13	1.03	1.18
10	0.45		0.97	1.13	1.00	1.18
12	0.42		0.92	1.12	1.00	1.17
14	0.40		0.85	1.10	0.97	1.16
16	0.39		0.83	1.08	0.96	1.16
18			0.73	1.05	0.93	1.15
20			0.66	1.02	0.90	1.14
25			0.54	0.90	0.84	1.12
30			0.47	0.85	0.75	1.11
40			0.45	0.80	0.62	1.06
50				0.77	0.56	
60						
80						
100						
150						
200						

Fairbanks, Alaska, [illegible]

Soil moisture [illegible] variable for prediction analysis

[illegible]

[illegible]

No winter data

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter
	Fairbanks, Alaska, Birch Hill, Herb., 2H				No winter data
0	1.75	1.18			
1	1.70	1.15			
2	1.65	1.13	1.57**	0.99**	
3	1.62	1.12	1.42	0.95	
4	1.58	1.10	1.37	0.93	
5	1.53	1.09	1.35	0.90	
6	1.47	1.07	1.32	0.86	
7	1.41	1.06	1.30	0.85	
8	1.35	1.05	1.29	0.83	
9	1.30	1.03	1.28	0.80	
10	1.25	1.01	1.27	0.77	
12	1.14	0.98	1.27	0.76	
14	1.06	0.95	1.25		
16	0.97	0.91	1.24		
18	0.90	0.87	1.23		
20	0.84	0.83			
25	0.70	0.73			
30		0.67			
40					
50					
60					
80					
100					
150					
200					

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter
	Fairbanks, Alaska, Steele Creek, Herb., 4H				No winter data
0	2.70				
1	2.52				
2	2.43	2.07**	2.55**	2.23**	
3	2.36	2.06	2.50	2.12	
4	2.32	2.05	2.45	2.10	
5	2.26	2.04	2.30	2.07	
6	2.22	2.03	2.24	2.02	
7	2.18	2.02	2.20	1.97	
8	2.15	2.01	2.19	1.90	
9	2.13	1.97	2.18	1.88	
10	2.10	1.95	2.17		
12	2.06	1.92	2.15		
14	2.02	1.85			
16	1.97	1.80			
18	1.93	1.72			
20	1.89	1.68			
25	1.83	1.53			
30	1.79	1.46			

Fairbanks, Alaska, Steele Creek, Forest, 4F

[illegible]

No winter data

Fairbanks, Alaska, Birch-Spruce, 6

Soil remained near saturation during study period

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter
	Fairbanks, Alaska, Birch-Willow, 7				No winter data
0	2.23	2.06	2.23		
1	2.10	1.92	2.15		
2	2.00	1.80	2.07	1.50**	
3	1.93	1.71	2.01	1.49	
4	1.89	1.65	1.95	1.48	
5	1.86	1.61	1.90	1.47	
6	1.83	1.58	1.87	1.46	
7	1.80	1.56	1.84	1.46	
8	1.76	1.53	1.82	1.45	
9	1.71	1.49	1.81	1.45	
10	1.66	1.45	1.79	1.45	
12	1.57	1.38	1.77	1.45	
14	1.46	1.32	1.74	1.44	
16	1.32	1.28		1.43	
18	1.24	1.24		1.43	
20	1.19	1.22		1.42	
25	1.10	1.21		1.41	
30	1.08	1.21		1.40	

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter
	Fairbanks, Alaska, Golf Course, Forest, 8F				No winter data
0	1.38		1.38		
1	1.30		1.30		
2	1.25	1.26**	1.25	1.22**	
3	1.20	1.24	1.20	1.10	
4	1.15	1.24	1.15	1.09	
5	1.10	1.24	1.12	1.07	
6	1.04	1.23	1.02	1.06	
7	0.97	1.21	1.07	1.05	
8	0.90	1.20	1.05	1.04	
9	0.83	1.19	1.04	1.03	
10	0.76	1.18	1.03	1.02	
12	0.64	1.16	1.01	1.00	
14	0.58	1.15	0.99	0.98	
16	0.54	1.11	0.98	0.97	
18	0.51	1.09	0.97	0.96	
20	0.50	0.93	0.97	0.95	
25		0.76	0.96		
30		0.68			
40		0.61			
50					
60					
80					
100					
150					
200					

(Continued)

* Field maximum moisture content determined by artificial wetting.
** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

Table H1 (Continued)

Fairbanks, Alaska, Golf Course, Herb., 8H

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.90		1.90	1.66	No winter data	
1	1.86		1.86	1.65		
2	1.81	1.58**	1.81	1.63		
3	1.77	1.55	1.77	1.62		
4	1.73	1.53	1.73	1.61		
5	1.70	1.50	1.70	1.60		
6	1.68	1.49	1.68	1.59		
7	1.65	1.47	1.65	1.58		
8	1.62	1.45	1.62	1.57		
9	1.59	1.45	1.59	1.56		
10	1.57	1.45	1.57	1.55		
12	1.52	1.43	1.52	1.54		
14	1.48	1.42	1.48	1.53		
16	1.46	1.40	1.46	1.52		
18	1.44	1.39	1.44	1.51		
20	1.43	1.37	1.43	1.50		
25	1.39	1.33	1.39	1.46		
30	1.29	1.25	1.29	1.41		
40		1.05		1.35		
50						
60						
80						
100						
150						
200						

Fairbanks, Alaska Experiment Farm, Forest, 9F

Soil remained near saturation during study period

Fairbanks, Alaska Experiment Farm, Herb., 9F

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6 in. Depth	Winter 6- to 12-in. Depth
0	2.90	2.42		2.42	No winter data	
1	2.74	2.27		2.27		
2	2.64	2.19	2.62**	2.19		
3	2.55	2.14	2.55	2.14		
4	2.47	2.10	2.49	2.10		
5	2.41	2.06	2.44	2.06		
6	2.36	2.02	2.40	2.02		
7	2.33	1.99	2.37	1.99		
8	2.29	1.97	2.35	1.97		
9	2.27	1.95	2.33	1.95		
10	2.25	1.94	2.32	1.94		
12	2.22	1.92	2.30	1.93		
14	2.20	1.89		1.92		
16	2.19	1.88				
18	2.19	1.87				
20	2.18	1.85				
25	2.18	1.83				

Fairbanks, Alaska, University Hill, 10

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.94	2.26	1.94	2.26	No winter data	
1	1.84	2.10	1.86	2.10		
2	1.76	1.97	1.78	1.97		
3	1.68	1.85	1.71	1.85		
4	1.59	1.74	1.64	1.74		
5	1.50	1.65	1.58	1.65		
6	1.42	1.56	1.54	1.56		
7	1.33	1.49	1.50	1.49		
8	1.24	1.43	1.47	1.43		
9	1.15	1.38	1.45	1.38		
10	1.08	1.33	1.43	1.33		
12	0.94	1.25	1.41	1.25		
14	0.81	1.19	1.39	1.19		
16	0.74	1.14	1.38	1.14		
18	0.68	1.05	1.37	1.09		
20	0.63	1.04	1.36	1.04		
25	0.58	0.93	1.34	0.93		
30	0.59	0.82	1.33	0.82		
40		0.64		0.64		
50						
60						
80						
100						
150						
200						

Fairbanks, Alaska, Dairy, 12

Day	Summer 0- to 6-in. Depth	Summer 6- to 12-in. Depth	Transition 0- to 6-in. Depth	Transition 6- to 12-in. Depth	Winter 0- to 6-in. Depth	Winter 6- to 12-in. Depth
0	1.92	0.77			No winter data	
1	1.88	0.76				
2	1.85	0.75	0.63**	0.55**		
3	1.80	0.74	0.62	0.54		
4	1.73	0.73	0.59	0.53		
5	1.68	0.73	0.57	0.52		
6	1.63	0.72	0.55	0.51		
7	1.58	0.71	0.54			
8	1.52	0.70	0.52			
9	1.46	0.69				
10	1.40	0.68				
12	1.25	0.66				
14	1.15	0.64				
16	1.08	0.63				
18	1.02	0.61				
20	0.96	0.59				
25	0.82	0.56				
30	0.68	0.53				
40	0.49	0.49				

** Moisture content of soil did not reach field maximum during this period. The number of days required for soil to dry to this point is not known.

APPENDIX I: DEVIATIONS OF PREDICTED FROM ACTUAL SOIL-MOISTURE CONTENT

Table I1 compares the soil-moisture content as determined by the prediction relations presented previously with the actual soil-moisture content determined by the electrical units or by gravimetric soil-moisture samples. The comparisons were made using data obtained by one of the following procedures:

1. On every day with an actual soil-moisture record, either fiberglas unit or gravimetric.
2. On days immediately before and after storms.
3. On days before and after storms and periodically during depletion periods.

The procedure numbers are shown in the last column of table I1.

Table Il

Average Deviation of Predicted from Actual Soil-moisture Content

Site	Avg Dev at 0-6 in.	Avg Dev at 6-12 in.	Number of Comparisons Made	Data Collection Procedure
Mississippi (incl Mound, La.)				
Vicksburg, Warren Co.				
Park	0.13	0.09	337	1
Rifle, Herbaceous	0.13	0.08	345	1
Rifle, Bare	0.11	0.04	352	1
Durden	0.09	0.06	439	1
Hardwood	0.05	0.08	350	1
Pine	0.08	0.05	360	1
Radiation, Herbaceous	0.17	0.12	111	2
Radiation, Bare	0.28	0.16	112	2
Radiation, Clipped	0.15	0.13	59	2
Mound, Madison Parish, La.				
Mound, Herbaceous	0.10	0.07	340	1
Mound, Bare	0.06	0.10	350	1
Laurel, Jones Co.				
Stockman, Upper	0.06	0.08	181	1
Stockman, Lower, Herb.	0.09	0.14	181	1
Stockman, Lower, Bare	0.05	0.04	181	1
Jefcoate	0.07	0.09	181	1
Clarke Co.				
Eddins	0.10	0.06	181	1
State College, Oktibbeha Co.				
Vaiden Complex, Herb.	0.30	0.20	311	1
Vaiden Complex, Bare	0.20	0.20	270	1
Oxford, Lafayette Co.				
Providence	0.18	0.12	77	2
Tippah	0.10	0.09	77	2
Lexington	0.13	0.07	76	2
Louisiana (excl Mound)				
Alexandria, Rapides Parish				
Savannah	0.11	0.06	98	1
Caddo	0.21	0.15	96	1

(Continued)

Table Il (Continued)

Site	Avg Dev at 0-6 in.	Avg Dev at 6-12 in.	Number of Comparisons Made	Data Collection Procedure
Texas				
Nacogdoches, City & Co.				
Boswell	0.09	0.06	96	2
Sawyer	0.09	0.06	70	2
Huckabee	0.14	0.10	86	2
Arkansas				
Crossett, Ashley Co.				
Headquarters, Forest	0.27	0.10	90	2
Headquarters, Bare	0.11	0.07	90	2
Pine-Hardwood	0.17	0.05	88	2
Prairie, Herbaceous	0.10	0.09	92	2
Prairie, Bare	0.22	0.10	92	2
Bushy Creek	0.08	0.10	93	2
Sandy	0.06	0.11	80	2
Florida				
Marianna, Jackson Co.				
Lakeland, Forest	0.11	0.13	163	2
South Carolina				
Union, City & Co.				
Barren-Eroded, 2	0.05	0.03	700	1
Lloyd, 3	0.13	0.09	646	1
Loblolly, 5	0.09	0.08	642	1
30- to 40-yr shortleaf, 6	0.09	0.07	476	1
40- to 50-yr shortleaf, 7	0.11	0.05	558	1
Missouri				
Poplar Bluff, Butler Co.				
Weldon, Forest	0.12	0.09	126	2
Weldon, Bare	0.16	0.09	126	2
Illinois				
Robbs, Pope Co.				
Grantsburg	0.12	0.13	42	2
Pennsylvania				
Dilldown, Monroe Co.				
Pimple Hill, 3	0.07	0.08	354	1
Old Farm, 4	0.05	0.04	410	1
Quarry Road, 8	0.06	0.08	355	1

(Continued)

Table I1 (Continued)

Site	Avg Dev at 0-6 in.	Avg Dev at 6-12 in.	Number of Comparisons Made	Data Collection Procedure
Maine				
Old Town, Penobscot Co.				
Young Pine			No predictions	
Mature Pine			No predictions	
Fir-Cedar			No predictions	
Wisconsin				
Rhinelander, Oneida Co.				
Sortek, Bare			No predictions	
Sortek, Herbaceous	0.26	0.19	62	2
Sortek, Forest	0.06	0.07	58	2
Hagen, Low	0.15	0.06	66	2
Hagen, Slope			No predictions	
Hagen, Peat			No predictions	
Peat Swamp			No predictions	
Timber Lake	0.12	0.04	66	2
Peterson	0.11	0.10	66	2
Gudis	0.06	0.03	66	2
Gross School, Forest	0.12	0.07	68	2
Gross School, Herbaceous	0.12	0.08	64	2
Wet Spencer			No predictions	
Noisy Creek			No predictions	
Montana				
Miles City, Custer Co.				
Gumbo	0.12	0.07	44	2
River	0.11	0.12	23	2
Highway	0.14	0.07	22	2
Idaho				
Priest River, Bonner Co.				
Blue Lake			No predictions	
Burn	0.08	0.13	45	3
Timber	0.19	0.23	44	3
Benton	0.22	0.18	27	3
Meadow, Herbaceous	0.27	0.23	26	3
Meadow, Bare	0.16	0.18	56	3
Washington				
Rockford, Spokane Co.				
Couse, Pine	0.06	0.02	72	2
Couse, Wheat	0.01	0.06	72	2
Caldwell	0.06	0.02	66	2
Thatuna, Wheat	0.13	0.03	72	2
Thatuna, Fallow	0.08	0.12	66	2

(Continued)

Table II (Continued)

Site	Avg Dev at 0-6 in.	Avg Dev at 6-12 in.	Number of Comparisons Made	Data Collection Procedure
California				
Tanbark Flat, Los Angeles Co.				
Tanbark, Chaparral	0.14	0.12	66	1
Tanbark, Bare	0.14	0.09	58	1
Sunflower	0.08	0.04	177	1
Unconfined Lysimeter A	0.15	0.07	36	2
Unconfined Lysimeter B	0.11	0.12	37	2
Unconfined Lysimeter C	0.08	0.11	36	2
Unconfined Lysimeter D	0.16	0.12	75	2
Unconfined Lysimeter E	0.20	0.19	73	2
Confined Lysimeter 1	0.12	0.16	55	2
Confined Lysimeter 3	0.14	0.15	54	2
Confined Lysimeter 5	0.13	0.16	55	2
Confined Lysimeter 9	0.15	0.16	53	2
Confined Lysimeter 19	0.12	0.11	44	2
Confined Lysimeter 24	0.25	0.15	74	2
North Fork, Madera Co.				
North Fork, Forest	0.09	0.08	76	1
North Fork, Bare	0.11	0.07	76	1
Bass Lake, Forest	0.10	0.07	54	1
Bass Lake, Bare	0.09	0.10	56	1
Colorado				
Grand Junction, Mesa Co.				
East Grand Mesa, Herb.	0.03	0.03	79	1
East Grand Mesa, Bare	0.03	0.02	82	1
West Grand Mesa, Herb.	0.07	0.05	97	1
West Grand Mesa, Bare	0.03	0.04	90	1
Spruce	0.05	0.03	42	1
Bog	0.12	0.07	40	1
Aspen, 1	0.04	0.04	59	1
Oakbrush, 1	0.02	0.02	60	1
Pinon-Juniper	0.03	0.05	91	1
Cedaredge, Delta Co.				
Aspen, 3	0.06	0.04	52	1
Aspen, 2	0.04	0.04	54	1
Aspen, Bare	0.02	0.02	53	1
Oakbrush, 2	0.05	0.05	58	1
Oakbrush, Bare	0.06	0.03	42	1
Delta, City & Co.				
Escalante, Herbaceous	0.04	0.05	92	1
Escalante, Bare	0.03	0.03	93	1
Badlands	0.04	0.03	87	1

(Continued)

Table II (Continued)

Site	Avg Dev at 0-6 in.	Avg Dev at 6-12 in.	Number of Comparisons Made	Data Collection Procedure
New Mexico				
Albuquerque, Bernalillo Co.				
Pine Flat, Herbaceous	0.05	0.04	109	1
Pine Flat, Forest	0.04	0.08	115	1
Pine Flat, Bare	0.07	0.04	83	1
San Antonito, Herbaceous	0.05	0.04	77	1
Sandia Mesa, Herbaceous	0.06	0.06	72	1
Flood Plain	0.05	0.05	71	1
Sandoval Co.				
Jemez Dam	0.07	0.04	63	1
Alaska				
Fairbanks				
Spruce, 1			No predictions	
Birch Hill, Forest, 2F	0.07	0.07	83	1
Birch Hill, Herbaceous, 2H	0.09	0.06	90	1
Steele Creek, Herbaceous, 4H	0.05	0.06	86	1
Steele Creek, Forest, 4F	0.08	0.05	76	1
Birch-Spruce, 6			No predictions	
Birch-Willow, 7	0.13	0.08	63	1
Golf Course, Forest, 8F	0.08	0.04	73	1
Golf Course, Herbaceous, 8H	0.06	0.06	85	1
Experiment Farm, Forest, 9F			No predictions	
Experiment Farm, Herb., 9H	0.03	0.06	85	1
University Hill, 10	0.08	0.07	88	1
Dairy, 12	0.09	0.05	85	1
Average deviation for:				
Method 1	0.08	0.06	66	
Method 2	0.13	0.10	47	
Method 3	0.18	0.19	5	

REPORTS OF THE SERIES ENTITLED "TRAFFICABILITY OF SOILS"
TECHNICAL MEMORANDUM NO. 3-240

Supplement No.	Title	Date
	Pilot Tests—Self-propelled Vehicles	Nov 1947
1	Laboratory Tests To Determine Effects of Moisture Content and Density Variations	Mar 1948
2	Trafficability Studies, Fort Churchill, Summer 1947	Aug 1948
3	Development of Testing Instruments	Oct 1948
4	Tests on Self-propelled Vehicles, Yuma, Arizona, 1947	April 1949
5	Analysis of Existing Data	May 1949
6	Tests on Self-propelled Vehicles, Vicksburg, Miss., 1947	Sept 1949
7	Tests on Towed Vehicles, 1947-1948	June 1950
8	Slope Studies	May 1951
9	Vehicle Classification	May 1951
10	Tests on Natural Soils with Self-propelled Vehicles, 1949-1950	Jan 1954
11	Soil Classification	Aug 1954
12	Tests on Natural Soils with Self-propelled Vehicles, 1951-1953	Nov 1954
13	Pilot Study, Tests on Coarse-grained Soils	Nov 1955
14	A Summary of Trafficability Studies through 1955	Dec 1956