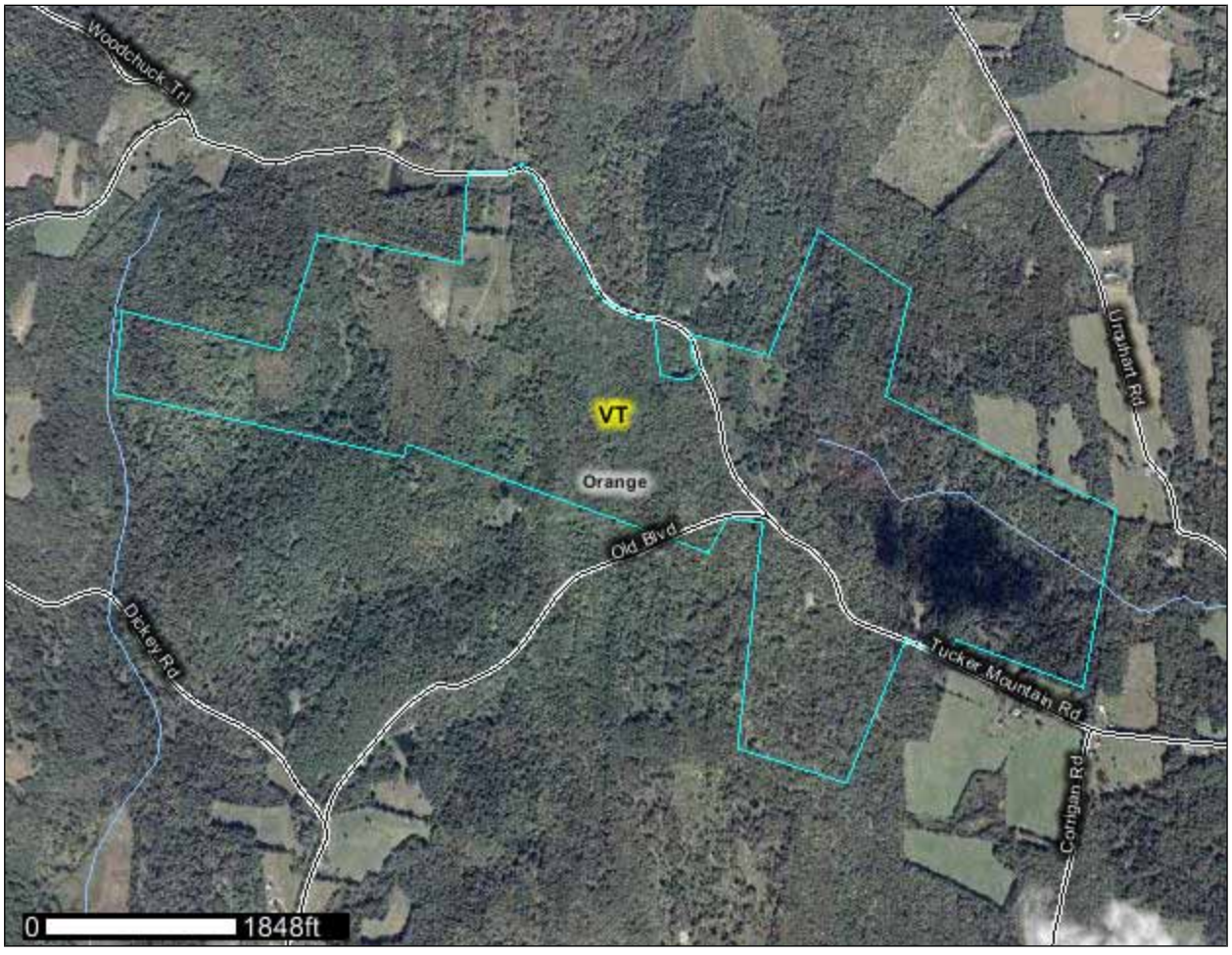
United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County, Vermont

Tucker Mountain Forest



May 25, 2010

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

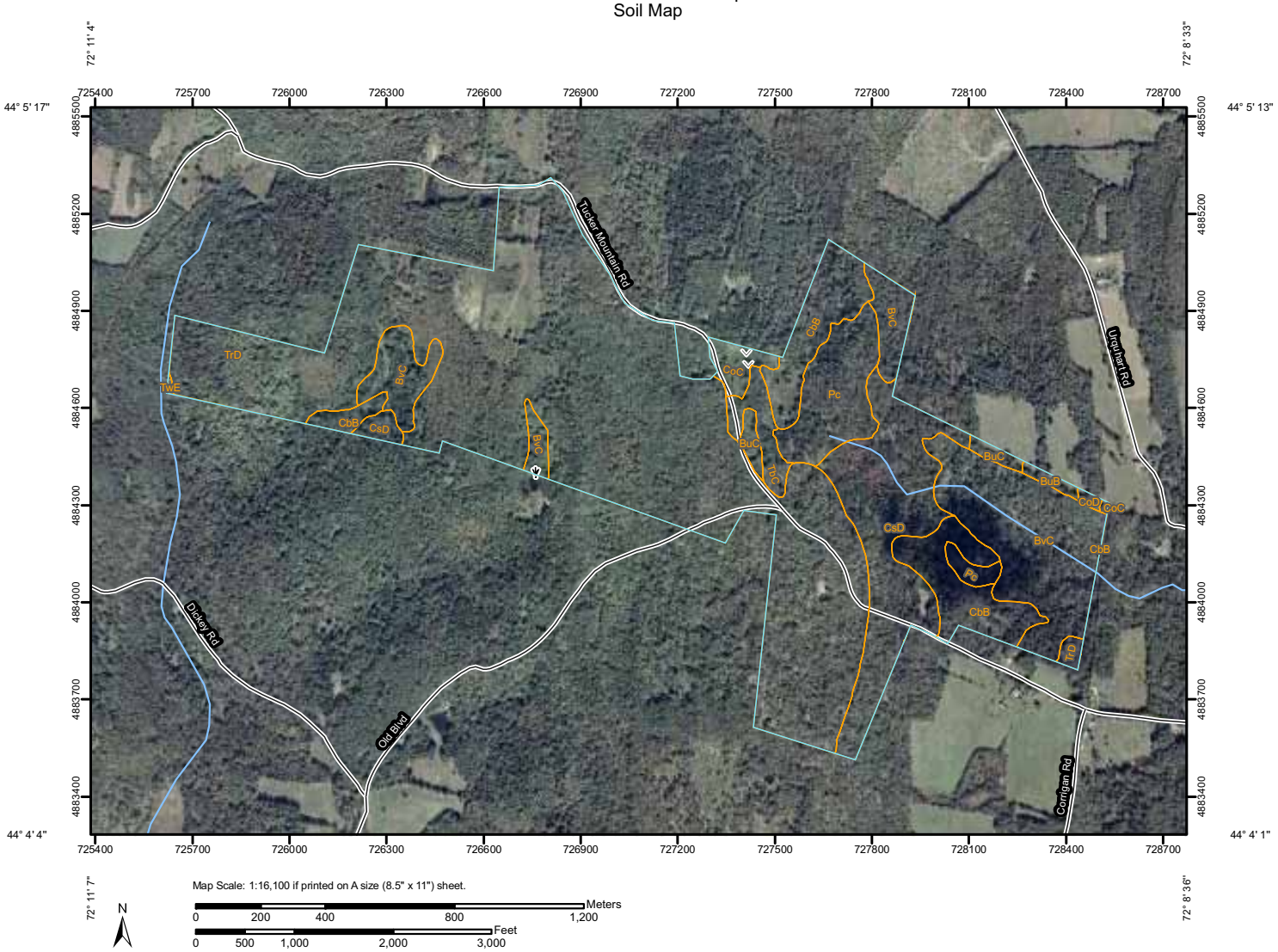
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:16,100 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County, Vermont
Survey Area Data: Version 15, Jan 19, 2010

Date(s) aerial images were photographed: 8/24/2003; 9/17/2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Orange County, Vermont (VT017)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BuB	Buckland stony loam, 3 to 8 percent slopes	1.7	0.4%
BuC	Buckland stony loam, 8 to 15 percent slopes	4.1	0.9%
BvC	Buckland very stony loam, 8 to 25 percent slopes	67.1	14.2%
CbB	Cabot very stony silt loam, 3 to 15 percent slopes	39.8	8.4%
CoC	Colrain stony fine sandy loam, 8 to 15 percent slopes	5.4	1.1%
CoD	Colrain stony fine sandy loam, 15 to 25 percent slopes	0.7	0.1%
CsD	Colrain very stony fine sandy loam, 8 to 25 percent slopes	53.7	11.3%
Pc	Peacham soils	25.4	5.3%
TbC	Tunbridge-Woodstock rocky fine sandy loams, 8 to 15 percent slopes	7.4	1.6%
TrD	Tunbridge-Woodstock very rocky fine sandy loams, 8 to 25 percent slopes	268.6	56.7%
TwE	Tunbridge-Woodstock complex, 25 to 50 percent slopes	0.2	0.0%
Totals for Area of Interest		**474.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County, Vermont

BuB—Buckland stony loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition

Buckland and similar soils: 85 percent
Minor components: 15 percent

Description of Buckland

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, convex
Across-slope shape: Concave, convex
Parent material: Coarse-loamy basal till

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 16 to 33 inches to dense material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Typical profile

0 to 7 inches: Loam
7 to 22 inches: Loam
22 to 60 inches: Silt loam

Minor Components

Cabot

Percent of map unit: 4 percent
Landform: Depressions

Colrain

Percent of map unit: 4 percent

Vershire

Percent of map unit: 4 percent

Glover

Percent of map unit: 3 percent

BuC—Buckland stony loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition

Buckland and similar soils: 85 percent
Minor components: 15 percent

Description of Buckland

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy basal till

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 16 to 33 inches to dense material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability (nonirrigated): 3e

Typical profile

0 to 7 inches: Loam
7 to 22 inches: Loam
22 to 60 inches: Silt loam

Minor Components

Cabot

Percent of map unit: 4 percent
Landform: Depressions

Colrain

Percent of map unit: 4 percent

Vershire
Percent of map unit: 4 percent

Glover
Percent of map unit: 3 percent

BvC—Buckland very stony loam, 8 to 25 percent slopes

Map Unit Setting
Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition
Buckland and similar soils: 85 percent
Minor components: 15 percent

Description of Buckland

Setting
Landform: Hills, ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy basal till

Properties and qualities
Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 16 to 33 inches to dense material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability (nonirrigated): 6s

Typical profile
0 to 7 inches: Loam
7 to 22 inches: Loam
22 to 60 inches: Silt loam

Minor Components

Cabot
Percent of map unit: 3 percent
Landform: Depressions

Colrain
Percent of map unit: 3 percent

Glover
Percent of map unit: 3 percent

Pomfret
Percent of map unit: 3 percent

Vershire
Percent of map unit: 3 percent

CbB—Cabot very stony silt loam, 3 to 15 percent slopes

Map Unit Setting
Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition
Cabot and similar soils: 85 percent
Minor components: 15 percent

Description of Cabot

Setting
Landform: Knolls, depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy basal till

Properties and qualities
Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 12 to 24 inches to dense material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.5 inches)

Interpretive groups
Land capability (nonirrigated): 6s

Typical profile
0 to 8 inches: Silt loam
8 to 14 inches: Loam
14 to 60 inches: Gravelly loam

Minor Components

Buckland
Percent of map unit: 5 percent

Colrain
Percent of map unit: 5 percent

Peacham, undrained
Percent of map unit: 5 percent
Landform: Depressions

CoC—Colrain stony fine sandy loam, 8 to 15 percent slopes

Map Unit Setting
Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition
Colrain and similar soils: 85 percent
Minor components: 15 percent

Description of Colrain

Setting
Landform: Hills
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities
Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups
Land capability (nonirrigated): 3e

Typical profile

0 to 6 inches: Fine sandy loam
6 to 33 inches: Fine sandy loam
33 to 60 inches: Fine sandy loam

Minor Components

Buckland

Percent of map unit: 3 percent

Cabot

Percent of map unit: 3 percent
Landform: Depressions

Pomfret

Percent of map unit: 3 percent

Tunbridge

Percent of map unit: 3 percent

Woodstock

Percent of map unit: 3 percent

CoD—Colrain stony fine sandy loam, 15 to 25 percent slopes

Map Unit Setting

Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition

Colrain and similar soils: 85 percent
Minor components: 15 percent

Description of Colrain

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups
Land capability (nonirrigated): 4e

Typical profile
0 to 6 inches: Fine sandy loam
6 to 33 inches: Fine sandy loam
33 to 60 inches: Fine sandy loam

Minor Components

Buckland
Percent of map unit: 4 percent

Pomfret
Percent of map unit: 4 percent

Tunbridge
Percent of map unit: 4 percent

Woodstock
Percent of map unit: 3 percent

CsD—Colrain very stony fine sandy loam, 8 to 25 percent slopes

Map Unit Setting
Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition
Colrain and similar soils: 85 percent
Minor components: 15 percent

Description of Colrain

Setting
Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities
Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups
Land capability (nonirrigated): 6s

Typical profile
0 to 6 inches: Fine sandy loam
6 to 33 inches: Fine sandy loam
33 to 60 inches: Fine sandy loam

Minor Components

Buckland
Percent of map unit: 3 percent

Cabot
Percent of map unit: 3 percent
Landform: Depressions

Pomfret
Percent of map unit: 3 percent

Tunbridge
Percent of map unit: 3 percent

Woodstock
Percent of map unit: 3 percent

Pc—Peacham soils

Map Unit Setting
Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition
Peacham, undrained, and similar soils: 85 percent
Minor components: 15 percent

Description of Peacham, Undrained

Setting
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy basal till

Properties and qualities
Slope: 0 to 3 percent

Depth to restrictive feature: 4 to 18 inches to dense material
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: Very low (about 2.0 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 8 inches: Muck
8 to 22 inches: Gravelly silt loam
22 to 60 inches: Silt loam

Minor Components

Cabot

Percent of map unit: 8 percent
Landform: Knolls

Muck, undrained

Percent of map unit: 7 percent
Landform: Depressions

TbC—Tunbridge-Woodstock rocky fine sandy loams, 8 to 15 percent slopes

Map Unit Setting

Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition

Tunbridge and similar soils: 45 percent
Woodstock and similar soils: 35 percent
Minor components: 20 percent

Description of Tunbridge

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability (nonirrigated): 3e

Typical profile

0 to 7 inches: Fine sandy loam
7 to 29 inches: Fine sandy loam
29 to 33 inches: Unweathered bedrock

Description of Woodstock

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability (nonirrigated): 4e

Typical profile

0 to 6 inches: Fine sandy loam
6 to 18 inches: Fine sandy loam
18 to 22 inches: Unweathered bedrock

Minor Components

Glover

Percent of map unit: 4 percent

Vershire

Percent of map unit: 4 percent

Buckland

Percent of map unit: 3 percent

Cabot
Percent of map unit: 3 percent
Landform: Depressions

Colrain
Percent of map unit: 3 percent

Pomfret
Percent of map unit: 3 percent

TrD—Tunbridge-Woodstock very rocky fine sandy loams, 8 to 25 percent slopes

Map Unit Setting
Elevation: 300 to 2,000 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days

Map Unit Composition
Tunbridge and similar soils: 45 percent
Woodstock and similar soils: 35 percent
Minor components: 20 percent

Description of Tunbridge

Setting
Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities
Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.8 inches)

Interpretive groups
Land capability (nonirrigated): 6s

Typical profile

0 to 7 inches: Fine sandy loam
7 to 29 inches: Fine sandy loam
29 to 33 inches: Unweathered bedrock

Description of Woodstock

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities

Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 6 inches: Fine sandy loam
6 to 18 inches: Fine sandy loam
18 to 22 inches: Unweathered bedrock

Minor Components

Glover

Percent of map unit: 4 percent

Vershire

Percent of map unit: 4 percent

Buckland

Percent of map unit: 3 percent

Cabot

Percent of map unit: 3 percent
Landform: Depressions

Colrain

Percent of map unit: 3 percent

Pomfret

Percent of map unit: 3 percent

TwE—Tunbridge-Woodstock complex, 25 to 50 percent slopes

Map Unit Setting

Elevation: 90 to 4,400 feet
Mean annual precipitation: 30 to 60 inches
Mean annual air temperature: 30 to 52 degrees F
Frost-free period: 30 to 180 days

Map Unit Composition

Woodstock and similar soils: 45 percent
Tunbridge and similar soils: 45 percent
Minor components: 10 percent

Description of Tunbridge

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities

Slope: 25 to 50 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.8 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 7 inches: Fine sandy loam
7 to 29 inches: Fine sandy loam
29 to 33 inches: Unweathered bedrock

Description of Woodstock

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy till

Properties and qualities

Slope: 25 to 50 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability (nonirrigated): 7e

Typical profile

0 to 6 inches: Fine sandy loam
6 to 18 inches: Fine sandy loam
18 to 22 inches: Unweathered bedrock

Minor Components

Colrain

Percent of map unit: 2 percent

Glover

Percent of map unit: 2 percent

Pomfret

Percent of map unit: 2 percent

Rock outcrop

Percent of map unit: 2 percent

Vershire

Percent of map unit: 2 percent

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Land Management

This folder contains a collection of tabular reports that present soil interpretations related to land management. The reports (tables) include all selected map units and components for each map unit, limiting features and interpretive ratings. Land management interpretations are tools designed to guide the user in evaluating existing conditions in planning and predicting the soil response to various land management practices, for a variety of land uses, including cropland, forestland, hayland, pastureland, horticulture, and rangeland. Example interpretations include suitability for a variety of irrigation practices, log landings, haul roads and major skid trails, equipment operability, site preparation, suitability for hand and mechanical planting, potential erosion hazard associated with various practices, and ratings for fencing and waterline installation.

Forestland Harvesting (VT) (Tucker Mountain Forest)

This table can help forestland owners or managers plan the use of soils for wood crops. Interpretive ratings are given for the soils according to the limitations that affect harvesting on forestland. The ratings are both verbal and numerical.

Rating class terms for suitability for use of harvesting equipment and for log landings indicate the degree to which the soils are suited to that specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect.

Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the column *Suitability for use of harvesting equipment (VT)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *Suitability for log landings (VT)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings. *Well suited* indicates that the soil has features that are favorable for log landings and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for log landings. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for log landings. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration.

Ratings in the column *General harvest season (VT)* is the period during the year when mechanized timber harvesting or thinning causes the least amount of soil damage. This period is generally when the soil is not too wet or when the ground is frozen or has adequate snow cover. The ratings are based on depth and duration of the seasonal high water table and the parent material as it relates to soil texture. Starting with the driest sites, map units that are rated *Year Round* are generally suited for forest management activities in all but the wettest periods of the year. They are formed in sandy and gravelly glacial outwash parent material and have a seasonal high water table greater than 6 feet. Map units that are rated *Except Spring* are generally suited for forest management activities throughout the year except for periods in the spring when the soil is saturated due to snowmelt and seasonal runoff. They formed in a variety of parent materials and have a seasonal high water table greater than 6 feet. Map units that are rated *Summer and Winter* are generally suited for forest management activities in the dry summer period and during winter when the ground is frozen or snow covered. They formed in a variety of parent materials and have a seasonal high water table at a moderate depth within the soil. Map units that are rated *Winter Only* are limited to forest management activities in the winter when the ground is frozen or when there is sufficient snow depth to prevent soil rutting and compaction. They formed in a variety of parent materials, have a seasonal high water table at a shallow depth within the soil, and are all classified as hydric soils. Map units that are *Not Rated* are generally not used for woodland and have very limited potential for commercial forest management.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National forestry manual.

Report—Forestland Harvesting (VT) (Tucker Mountain Forest)

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. In the suitability for use of harvesting equipment and log landing columns, the larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Forestland Harvesting (VT)– Orange County, Vermont							
Map symbol and soil name	Pct. of map unit	Suitability for use of harvesting equipment (VT)		Suitability for log landings (VT)		General harvest season (VT)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BuB—Buckland stony loam, 3 to 8 percent slopes							
Buckland	85	Well suited		Moderately suited		Summer & Winter	
				Wetness	0.82	Seasonal soil wetness	1.00
BuC—Buckland stony loam, 8 to 15 percent slopes							
Buckland	85	Well suited		Moderately suited		Summer & Winter	
				Wetness	0.82	Seasonal soil wetness	1.00
				Slope	0.50		
BvC—Buckland very stony loam, 8 to 25 percent slopes							
Buckland	85	Well suited		Poorly suited		Summer & Winter	
				Slope	1.00	Seasonal soil wetness	1.00
				Wetness	0.82		
CbB—Cabot very stony silt loam, 3 to 15 percent slopes							
Cabot	85	Moderately suited		Poorly suited		Winter Only	
		30-60cm to water table for >=6mos	0.50	Wetness	1.00	Long term soil wetness	1.00
				Slope	0.50		
CoC—Colrain stony fine sandy loam, 8 to 15 percent slopes							
Colrain	85	Well suited		Moderately suited		Except Spring	
				Slope	0.50	Seasonal soil wetness	1.00

Forestland Harvesting (VT)– Orange County, Vermont							
Map symbol and soil name	Pct. of map unit	Suitability for use of harvesting equipment (VT)		Suitability for log landings (VT)		General harvest season (VT)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CoD—Colrain stony fine sandy loam, 15 to 25 percent slopes							
Colrain	85	Moderately suited		Poorly suited		Except Spring	
		Slope	0.50	Slope	1.00	Seasonal soil wetness	1.00
CsD—Colrain very stony fine sandy loam, 8 to 25 percent slopes							
Colrain	85	Well suited		Poorly suited		Except Spring	
				Slope	1.00	Seasonal soil wetness	1.00
Pc—Peacham soils							
Peacham, undrained	85	Poorly suited		Poorly suited		Winter Only	
		Low strength	1.00	Ponding	1.00	Long term soil wetness	1.00
		<30cm to water table for >=6mos	1.00	Low strength	1.00		
				Wetness	1.00		
TbC—Tunbridge-Woodstock rocky fine sandy loams, 8 to 15 percent slopes							
Tunbridge	45	Well suited		Moderately suited		Except Spring	
				Slope	0.50	Seasonal soil wetness	1.00
Woodstock	35	Well suited		Moderately suited		Except Spring	
				Slope	0.50	Seasonal soil wetness	1.00
TrD—Tunbridge-Woodstock very rocky fine sandy loams, 8 to 25 percent slopes							
Tunbridge	45	Well suited		Poorly suited		Except Spring	
				Slope	1.00	Seasonal soil wetness	1.00
Woodstock	35	Well suited		Poorly suited		Except Spring	
				Slope	1.00	Seasonal soil wetness	1.00
TwE—Tunbridge-Woodstock complex, 25 to 50 percent slopes							
Tunbridge	45	Poorly suited		Poorly suited		Except Spring	
		Slope	1.00	Slope	1.00	Seasonal soil wetness	1.00
Woodstock	45	Poorly suited		Poorly suited		Except Spring	
		Slope	1.00	Slope	1.00	Seasonal soil wetness	1.00

Vegetative Productivity

This folder contains a collection of tabular reports that present vegetative productivity data. The reports (tables) include all selected map units and components for each map unit. Vegetative productivity includes estimates of potential vegetative production for a variety of land uses, including cropland, forestland, hayland, pastureland, horticulture and rangeland. In the underlying database, some states maintain crop yield data by individual map unit component. Other states maintain the data at the map unit level. Attributes are included for both, although only one or the other is likely to contain data for any given geographic area. For other land uses, productivity data is shown only at the map unit component level. Examples include potential crop yields under irrigated and nonirrigated conditions, forest productivity, forest site index, and total rangeland production under of normal, favorable and unfavorable conditions.

Forestland Productivity (VT) (Tucker Mountain Forest)

This table can help forestland owners or managers plan the use of soils for wood crops. It shows the potential productivity of the soils for wood crops.

Potential productivity of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National Forestry Manual.

Report—Forestland Productivity (VT) (Tucker Mountain Forest)

Forestland Productivity (VT)– Orange County, Vermont				
Map unit symbol and soil name	**Potential productivity**			**Trees to manage**
	Common trees	**Site Index**	**Volume of wood fiber**	
			Cu ft/ac	
BuB—Buckland stony loam, 3 to 8 percent slopes				
Buckland	Balsam fir	62	114	Eastern white pine, Norway spruce, Red spruce, White spruce
	Eastern hemlock	56	0	
	Eastern white pine	71	129	
	Sugar maple	57	29	
	White spruce	64	143	
	Yellow birch	60	57	
BuC—Buckland stony loam, 8 to 15 percent slopes				
Buckland	Balsam fir	62	114	Eastern white pine, Norway spruce, Red spruce, White spruce
	Eastern hemlock	56	0	
	Eastern white pine	71	129	
	Sugar maple	57	29	
	White spruce	64	143	
	Yellow birch	60	57	
BvC—Buckland very stony loam, 8 to 25 percent slopes				
Buckland	Balsam fir	62	114	Eastern white pine, Norway spruce, Red pine, Red spruce, Tamarack, White spruce
	Eastern hemlock	56	0	
	Eastern white pine	71	129	
	Sugar maple	57	29	
	White spruce	64	143	
	Yellow birch	60	57	
CbB—Cabot very stony silt loam, 3 to 15 percent slopes				
Cabot	Balsam fir	56	0	Eastern white pine, White spruce
	Eastern hemlock	50	0	
	Red spruce	47	0	
	Sugar maple	56	29	
	White spruce	60	143	
	Yellow birch	56	—	

Forestland Productivity (VT)– Orange County, Vermont				
Map unit symbol and soil name	**Potential productivity**			**Trees to manage**
	Common trees	**Site Index**	**Volume of wood fiber**	
			Cu ft/ac	
CoC—Colrain stony fine sandy loam, 8 to 15 percent slopes				
Colrain	Eastern hemlock	50	0	Balsam fir, Eastern white pine, Norway spruce, Red pine, White spruce
	Eastern white pine	75	143	
	Red pine	67	129	
	Red spruce	45	100	
	Sugar maple	65	43	
	Yellow birch	56	43	
CoD—Colrain stony fine sandy loam, 15 to 25 percent slopes				
Colrain	Eastern hemlock	50	0	Balsam fir, Eastern white pine, Norway spruce, Red pine, White spruce
	Eastern white pine	75	143	
	Red pine	67	129	
	Red spruce	45	100	
	Sugar maple	65	43	
	Yellow birch	56	43	
CsD—Colrain very stony fine sandy loam, 8 to 25 percent slopes				
Colrain	Eastern hemlock	50	0	Balsam fir, Eastern white pine, Norway spruce, Red pine, White spruce
	Eastern white pine	75	143	
	Northern red oak	66	100	
	Red pine	67	129	
	Sugar maple	65	43	
	Yellow birch	56	43	
Pc—Peacham soils				
Peacham, undrained	Red maple	60	43	—
TbC—Tunbridge-Woodstock rocky fine sandy loams, 8 to 15 percent slopes				
Tunbridge	Eastern white pine	75	114	Balsam fir, Blue spruce, Douglas-fir, Eastern white pine, Fraser fir, Larch, Norway spruce, Red spruce, White spruce
	Northern red oak	70	57	
	Red spruce	55	100	
Woodstock	Balsam fir	58	114	Balsam fir, Eastern white pine, White spruce
	Red pine	60	100	
	Red spruce	41	86	
	White spruce	58	129	

Forestland Productivity (VT)– Orange County, Vermont				
Map unit symbol and soil name	**Potential productivity**			**Trees to manage**
	Common trees	**Site Index**	**Volume of wood fiber**	
			Cu ft/ac	
TrD—Tunbridge-Woodstock very rocky fine sandy loams, 8 to 25 percent slopes				
Tunbridge	Eastern white pine	75	86	Balsam fir, Eastern white pine, Red spruce, Scotch pine, Tamarack, White spruce
	Northern red oak	70	0	
	Red spruce	55	114	
Woodstock	Balsam fir	58	114	Balsam fir, Eastern white pine, White spruce
	Red pine	60	100	
	Red spruce	41	86	
	White spruce	58	129	
TwE—Tunbridge-Woodstock complex, 25 to 50 percent slopes				
Tunbridge	Eastern white pine	75	86	Balsam fir, Eastern white pine, Red spruce, Scotch pine, Tamarack, White spruce
	Northern red oak	70	0	
	Red spruce	55	114	
Woodstock	Balsam fir	58	114	Balsam fir, Eastern white pine, White spruce
	Red pine	60	100	
	Red spruce	41	86	
	White spruce	58	129	

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