Soil Survey Evaluation for Chittenden County, VT
Vermont NRCS
2010

This report contains general information about the history of the soil survey and an evaluation of the available soil survey information, for use in planning for maintenance and updates to the soil survey.

1. General Information

A. State Soil Survey Area ID (STSSAID)	VT007
B. Acres (from NRI)	
Total land acres in the survey area	345,400
Total census water in the survey area	51,900
Total Surface area	397,300
Approximate acres within **MLRA 142** (as of 1996)	158,900
Approximate acres within **MLRA 143** (as of 1996)	238,400

Correlation

A. Correlation date	1969
B. Correlation Amendment Dates	
First	1969
Second	1970
Third (Ethan Allen Firing Range)	2002
Forth (Camp Johnson Training Area)	2002
Fifth	2006

Initial Soil survey

A. Publication date	1974
Reprint	1989
B. Publication scale	1:15,840
C. Photobase	Mosaic
D. Mapping order	2
E. Field Mapping scale	15,840
F. Field Mapping	
Started	1940
Completed	1967
G. Soil Survey Status	Out-of-date

Digital Soil survey

A. Date survey digitized	2006
B. SSURGO base map	NRCS quarter-quads (UTM)
C. SSURGO Digitizing Scale	1:12,000
D. Date of SSURGO Certification	2006

2. Quality of the Existing Soil Survey

Published Soil Survey

Initial soil mapping was focused on providing detail in agricultural areas. Open areas were mapped by detailed traversing of the landscape with some photo interpretation. Wooded areas were mapped mainly by photo interpretation with some traversing. The line work generally conforms to large landforms in MLRA 142, but not in MLRA 143. Map unit polygons in wooded areas in MLRA 143 are much larger than those in open areas and include areas that could be mapped separately based on current standards.

Soil names and descriptions were approved in 1969. Unless otherwise stated, statements in the published soil survey refer to conditions in the soil survey area in 1967. The soil maps were map finished using overlays of compiled soil maps, drainage, and cultural feature.

Soil Maps

Soil maps in the published soil survey are no longer certified for any official uses. Officially certified soil maps derived from SSURGO data are available on: 1) the Web Soil Survey, and 2) the Soil Data Mart.

The soil mapping and interpretations for the Ethan Allen Firing Range in Underhill and Camp Johnson in Colchester were updated in 2001, using an expanded soil survey legend and a current set of aerial photographs, and meet NCSS standards. These areas were mapped at a scale of 1:12,000. Some of the map unit concerns listed below are based on the findings of these update mapping projects.

The downtown area of the City of Burlington was never mapped.

Taxonomic and Map Unit Names and Descriptions

The taxonomic and map unit names and descriptions do not meet current standards. Many of the taxonomic units no longer classify correctly. Classification was done using the 7th Approximation of Soil Taxonomy. The composition of the map units is poorly described. The map unit use paragraphs do not meet the needs of many users.

List of Map Unit Concerns by MLRA – see legend below for individual map units

MLRA 142

142-A. The description of stoniness for this unit is out of date and the degree of stoniness appears to be inaccurate, based on observations made during field office site visits.

142-FX. Consociations of shallow soils may be complexes with moderately deep or very shallow series.

142-G. This flooded phase of a clayey soil series may be a new series, not just a map unit phase.

142-I. Series was classified as Inceptisols, while current classification of this series is Mollisols. May also include areas that fit the Benson series.

142-H. Fresh water marsh map units (and other units with this note) may contain significant areas of subaqueous soils.

142-K. This unit may include significant areas of the somewhat poorly drained, non-hydric Kingsbury series, which was not mapped within the catena of clay soils in the county.

142-L. Map units of Miscellaneous Land Types need refinement/updates. Some of these could be combined, while others could be mapped using soil series now. They have poor interpretative value.

142-MF. This mesic floodplain unit was mapped throughout the county across the mesic and frigid temperature zones. In addition, soil series in other textural families besides coarse-silty were included in this unit. They were not mapped in the county, although they were mapped in nearby counties.

142-O. This broadly defined organic soil unit was mapped throughout county across mesic and frigid temperature zones. There are no series identified, and very few interpretations are available.

142-R. This rocky unit was mapped on various bedrock types, included series are not identified, slopes are not identified, and there are very few interpretations are available.

142-SL. Out of date slope classes were used for this map unit. They have poor interpretative value.

142-SP. One or more of the series in this map unit were classified as Spodosols, but are currently classified within other Orders.

142-T. This series was mapped throughout the county across the mesic and frigid temperature zones. It should be confined to the appropriate temperature zone within county. Other series are needed on the legend to map in other temperature zone areas. Related to this issue, in some counties, some series are mapped only in the mesic region, but are now classified as having a frigid temperature class.

142-UD. This unit is an undifferentiated unit. However, there may be significant interpretive and morphological differences between the major soils to justify separating them into consociations.

142-UL. A significant number of delineations of these consociations of soil series include large areas of urban and built-up land that could be mapped as distinct Urban Land units or complexes.

MLRA 143

143-A. The description of stoniness for this unit is out of date and the degree of stoniness appears to be inaccurate, based on observations made during field office site visits.

143-CRY. Based on the landforms and elevations at which it was mapped, this unit appears to have many included soils that have a significant mappable extent in the county, including high elevation cryic soil temperature soil series, “superspodics” or Humods (such as the Rawsonville, Houghtonville, Hogback, and Mundal series), and even the Lyman and Tunbridge series in some counties. These soil series and catenas were not mapped in county.

143-F. This series was classified as having a fragipan. The concept is no longer valid in Vermont. This series is now considered to have a densic contact over densic materials.

143-MF. This mesic floodplain unit was mapped throughout the county across the mesic and frigid temperature zones. In addition, soil series in other textural families besides coarse-silty were included in this unit. They were not mapped in the county, although they were mapped in nearby counties.

143-O. This broadly defined organic soil unit was mapped throughout county across mesic and frigid temperature zones. There are no series identified, and very few interpretations are available.

143-OR3. This map unit appears to be mapped at the Order 3 level in many areas, with poor line placement and very large polygon size.

143-R. This rocky unit was mapped on various bedrock types, included series are not identified, slopes are not identified, and there are very few interpretations are available.

143-SL. Out of date slope classes were used for this map unit. They have poor interpretative value.

143-SPI. Based on observations made during site visits and other various field work, this Spodosol map unit may include significant mappable areas of frigid Inceptisols.

143-SPX. This series does not meet current taxonomic classification requirements for Spodosols.

143-T. This series was mapped throughout the county across the mesic and frigid temperature zones. It should be confined to the appropriate temperature zone within county. Other series are needed on the legend to map in other temperature zone areas. Related to this issue, in some counties, some series are mapped only in the mesic region, but are now classified as having a frigid temperature class.

Map Unit Symbol and Name			**Map Unit Issues by MLRA-Concern Number (see above)**						
AdA ADAMS AND WINDSOR LOAMY SANDS, 0 TO 5 PERCENT SLOPES		142-SL	142-T	142-UD	142-UL	143-SL	143-SPX	143-T	
AdB ADAMS AND WINDSOR LOAMY SANDS, 5 TO 12 PERCENT SLOPES		142-SL	142-T	142-UD	143-SL	143-SPX	143-T		
AdD ADAMS AND WINDSOR LOAMY SANDS, 12 TO 30 PERCENT SLOPES		142-SL	142-T	142-UD	143-SL	143-SPX	143-T		
AdE ADAMS AND WINDSOR LOAMY SANDS, 30 TO 60 PERCENT SLOPES		142-SL	142-T	142-UD	143-SL	143-SPX	143-T		
AgA AGAWAM FINE SANDY LOAM, 0 TO 5 PERCENT SLOPES		142-SL	142-SP						
AgD AGAWAM FINE SANDY LOAM, 12 TO 30 PERCENT SLOPES		142-SL	142-SP						
AgE AGAWAM FINE SANDY LOAM, 30 TO 60 PERCENT SLOPES		142-SL	142-SP						
An ALLUVIAL LAND		142-L							
Au AU GRES FINE SANDY LOAM		142-SL	142-T	143-SL	143-T				
Be BEACHES		142-L							
BlA BELGRADE AND ELDRIDGE SOILS, 0 TO 3 PERCENT SLOPES		142-SP	142-UD						
BlB BELGRADE AND ELDRIDGE SOILS, 3 TO 8 PERCENT SLOPES		142-SP	142-UD						
BlC BELGRADE AND ELDRIDGE SOILS, 8 TO 15 PERCENT SLOPES		142-SP	142-UD						
BlD BELGRADE AND ELDRIDGE SOILS, 15 TO 25 PERCENT SLOPES		142-SP	142-UD						
Bo BLOWN-OUT LAND		142-L							

Br BORROW PITS		142-L							
CaA CABOT STONY SILT LOAM, 0 TO 3 PERCENT SLOPES		143-F	143-A						
CaC CABOT STONY SILT LOAM, 3 TO 15 PERCENT SLOPES		143-SL	143-F	143-A					
CbA CABOT EXTREMELY STONY SILT LOAM, 0 TO 3 PERCENT SLOPES		143-SL	143-F	143-A					
CbD CABOT EXTREMELY STONY SILT LOAM, 3 TO 25 PERCENT SLOPES		143-SL	143-F	143-A					
CoA COLTON GRAVELLY LOAMY SAND, 0 TO 5 PERCENT SLOPES		143-SL	143-T						
CoB COLTON GRAVELLY LOAMY SAND, 5 TO 12 PERCENT SLOPES		143-SL	143-T	142-T	142-UL				
CoC COLTON GRAVELLY LOAMY SAND, 12 TO 20 PERCENT SLOPES		143-SL	143-T	142-T	142-UL				
CsD COLTON AND STETSON SOILS, 20 TO 30 PERCENT SLOPES		143-SL	143-T	142-T					
CsE COLTON AND STETSON SOILS, 30 TO 60 PERCENT SLOPES		143-SL	143-T	142-T					
Cv COVINGTON SILTY CLAY		142-K							
DdA DUANE AND DEERFIELD SOILS, 0 TO 5 PERCENT SLOPES		142-SL	142-SP	142-T	142-UD	142-UL	143-SL	143-T	
DdB DUANE AND DEERFIELD SOILS, 5 TO 12 PERCENT SLOPES		142-SL	142-SP	142-T	142-UD	143-SL	143-T		
DdC DUANE AND DEERFIELD SOILS, 12 TO 20 PERCENT SLOPES		142-SL	142-SP	142-T	142-UD	143-SL	143-T		
EwA ENOSBURG AND WHATELY SOILS, 0 TO 3 PERCENT SLOPES		142-T	142-UD						
EwB ENOSBURG AND WHATELY SOILS, 3 TO 8 PERCENT SLOPES		142-T	142-UD						
FaC FARMINGTON EXTREMELY ROCKY LOAM, 5 TO 20 PERCENT SLOPES		142-SL	142-T	143-T	142-FX	142-A			
FaE FARMINGTON EXTREMELY ROCKY LOAM, 20 TO 60 PERCENT SLOPES		142-SL	142-T	143-T	142-FX	142-A			
FsB FARMINGTON-STOCKBRIDGE ROCKY LOAMS, 5 TO 12 PERCENT SLOPES		142-SL	142-T	143-T	142-A				
FsC FARMINGTON-STOCKBRIDGE ROCKY LOAMS, 12 TO 20 PERCENT SLOPES		142-SL	142-T	143-T	142-A				
FsE FARMINGTON-STOCKBRIDGE ROCKY LOAMS, 20 TO 60 PERCENT SLOPES		142-SL	142-T	143-T	142-A				

Fu FILL LAND		142-L							
Fw FRESH WATER MARSH		142-H							
GeB GEORGIA STONY LOAM, 3 TO 8 PERCENT SLOPES		142-T	142-A						
GeC GEORGIA STONY LOAM, 8 TO 15 PERCENT SLOPES		142-T	142-A						
GgC GEORGIA EXTREMELY STONY LOAM, 0 TO 15 PERCENT SLOPES		142-SL	142-T	142-A					
GgE GEORGIA EXTREMELY STONY LOAM, 15 TO 60 PERCENT SLOPES		142-SL	142-T	142-A					
Gpi PITS, SAND AND PITS, GRAVEL									
GrA GROTON GRAVELLY FINE SANDY LOAM, 0 TO 5 PERCENT SLOPES		142-SL							
GrB GROTON GRAVELLY FINE SANDY LOAM, 5 TO 12 PERCENT SLOPES		142-SL							
GrC GROTON GRAVELLY FINE SANDY LOAM, 12 TO 20 PERCENT SLOPES		142-SL							
GrD GROTON GRAVELLY FINE SANDY LOAM, 20 TO 30 PERCENT SLOPES		142-SL							
GrE GROTON GRAVELLY FINE SANDY LOAM, 30 TO 60 PERCENT SLOPES		142-SL							
Hf HADLEY VERY FINE SANDY LOAM		142-MF	143-MF						
Hh HADLEY VERY FINE SANDY LOAM, FREQUENTLY FLOODED		142-MF	143-MF						
HlB HARTLAND VERY FINE SANDY LOAM, 2 TO 6 PERCENT SLOPES		142-SL	142-SP						
HlC HARTLAND VERY FINE SANDY LOAM, 6 TO 12 PERCENT SLOPES		142-SL	142-SP						
HlD HARTLAND VERY FINE SANDY LOAM, 12 TO 25 PERCENT SLOPES		142-SL	142-SP						
HlE HARTLAND VERY FINE SANDY LOAM, 25 TO 60 PERCENT SLOPES		142-SP							
HnA HINESBURG FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES		142-SP							
HnB HINESBURG FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES		142-SP							
HnC HINESBURG FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES		142-SP							
HnD HINESBURG FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES		142-SP							

HnE HINESBURG FINE SANDY LOAM, 25 TO 60 PERCENT SLOPES		142-SP							
Le LIMERICK SILT LOAM		142-MF	143-MF						
Lf LIMERICK SILT LOAM, VERY WET		142-MF	143-MF						
Lh LIVINGSTON CLAY									
Lk LIVINGSTON SILTY CLAY, OCCASIONALLY FLOODED		142-G							
LmB LYMAN-MARLOW ROCKY LOAMS, 5 TO 12 PERCENT SLOPES		143-SL	143-F	143-T	143-CRY	143-A			
LmC LYMAN-MARLOW ROCKY LOAMS, 12 TO 20 PERCENT SLOPES		143-SL	143-F	143-T	143-CRY	143-A			
Lss LIMIT OF SOIL SURVEY									
LyD LYMAN-MARLOW VERY ROCKY LOAMS, 5 TO 30 PERCENT SLOPES		143-SL	143-F	143-T	143-OR3	143-CRY	143-A		
LyE LYMAN-MARLOW VERY ROCKY LOAMS, 30 TO 60 PERCENT SLOPES		143-SL	143-F	143-T	143-OR3	143-CRY	143-A		
MaB MARLOW STONY LOAM, 5 TO 12 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
MaC MARLOW STONY LOAM, 12 TO 20 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
MaD MARLOW STONY LOAM, 20 TO 30 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
MeC MARLOW EXTREMELY STONY LOAM, 5 TO 20 PERCENT SLOPES		143-SL	143-F	143-OR3	143-CRY	143-A	143-SPI		
MeE MARLOW EXTREMELY STONY LOAM, 20 TO 60 PERCENT SLOPES		143-SL	143-F	143-OR3	143-CRY	143-A	143-SPI		
MnC MASSENA STONY SILT LOAM, 0 TO 15 PERCENT SLOPES		142-SL	142-A						
MoC MASSENA EXTREMELY STONY SILT LOAM, 0 TO 15 PERCENT SLOPES		142-SL	142-A						
Mp MUCK AND PEAT		142-O	143-OR3	143-O					
MuD MUNSON AND BELGRADE SILT LOAMS, 12 TO 25 PERCENT SLOPES		142-SL	142-UD						
MyB MUNSON AND RAYNHAM SILT LOAMS, 2 TO 6 PERCENT SLOPES		142-SL	142-UD						
MyC MUNSON AND RAYNHAM SILT LOAMS, 6 TO 12 PERCENT SLOPES		142-SL	142-UD						
PaB PALATINE SILT LOAM, 3 TO 8 PERCENT SLOPES		142-I	142-Y						
PaC PALATINE SILT LOAM, 8 TO 15 PERCENT SLOPES		142-I	142-Y						

PaD PALATINE SILT LOAM, 15 TO 25 PERCENT SLOPES		142-I	142-Y						
PaE PALATINE SILT LOAM, 25 TO 60 PERCENT SLOPES		142-I	142-Y						
Pc PEACHAM STONY SILT LOAM		143-SL	143-F	143-A					
PeA PERU STONY LOAM, 0 TO 5 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
PeB PERU STONY LOAM, 5 TO 12 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
PeC PERU STONY LOAM, 12 TO 20 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
PeD PERU STONY LOAM, 20 TO 30 PERCENT SLOPES		143-SL	143-F	143-A	143-SPI				
PsC PERU EXTREMELY STONY LOAM, 0 TO 20 PERCENT SLOPES		143-SL	143-F	143-OR3	143-A	143-SPI			
PsE PERU EXTREMELY STONY LOAM, 20 TO 60 PERCENT SLOPES		143-SL	143-F	143-OR3	143-CRY	143-A	143-SPI		
Qd QUARRIES		142-L							
Rk ROCK LAND		142-R	143-R	143-OR3	143-CRY				
ScA SCANTIC SILT LOAM, 0 TO 2 PERCENT SLOPES		142-SL	142-T						
ScB SCANTIC SILT LOAM, 2 TO 6 PERCENT SLOPES		142-SL	142-T						
Sd SCARBORO LOAM		142-T	143-T						
StA STETSON GRAVELLY FINE SANDY LOAM, 0 TO 5 PERCENT SLOPES		143-SL							
StB STETSON GRAVELLY FINE SANDY LOAM, 5 TO 12 PERCENT SLOPES		143-SL							
StC STETSON GRAVELLY FINE SANDY LOAM, 12 TO 20 PERCENT SLOPES		143-SL							
SuB STOCKBRIDGE AND NELLIS STONY LOAMS, 3 TO 8 PERCENT SLOPES		142-T	142-A	142-UD					
SuC STOCKBRIDGE AND NELLIS STONY LOAMS, 8 TO 15 PERCENT SLOPES		142-T	142-A	142-UD					
SuD STOCKBRIDGE AND NELLIS STONY LOAMS, 15 TO 25 PERCENT SLOPES		142-T	142-A	142-UD					
SxC STOCKBRIDGE AND NELLIS EXTREMELY STONY LOAMS, 3 TO 15 PERCENT SLOPES		142-SL	142-T	142-A	142-UD				
SxE STOCKBRIDGE AND NELLIS EXTREMELY STONY LOAMS, 15 TO 60 PERCENT SLOPES		142-SL	142-T	142-A	142-UD				

TeE TERRACE ESCARPMENTS, SILTY AND CLAYEY		142-L	142-AL						
VeB VERGENNES CLAY, 2 TO 6 PERCENT SLOPES		142-SL	142-K						
VeC VERGENNES CLAY, 6 TO 12 PERCENT SLOPES		142-SL	142-K						
VeD VERGENNES CLAY, 12 TO 25 PERCENT SLOPES		142-SL	142-K						
VeE VERGENNES CLAY, 25 TO 60 PERCENT SLOPES		142-SL	142-K						
W WATER									
Wo WINOOSKI VERY FINE SANDY LOAM		142-MF	143-MF						

Interpretations
Interpretations in the published survey no longer meet the needs of many users. The interpretations were approved when the soil survey was correlated. Interpretations developed or revised since correlation are available or are referenced in the Field Office Technical Guide, Section II, Part I, Soils Information, and on the Soil Data Mart.

3. Digital Soil Survey/Tabular Soil Survey Data
SSURGO-certified data is posted to the Soil Data Mart and Web Soil Survey.

4. Plans to update the Soil Survey
This section will be completed by the MLRA Soil Survey Office after a review of county SS evaluations.

5. Staff and Budget needed to update the Soil Survey
This section will be completed by the MLRA Soil Survey Office after a review of county SS evaluations.