PRESERVE MANAGEMENT PLAN

Carruth Preserve

Prepared for Oblong Land Conservancy
by Paul Elconin

This management plan was accepted and approved by the Oblong Land Conservancy Board of Directors at a regularly scheduled meeting on ________________, 2014.

_________________________ _____________________

Christopher Wood, Chair Date

Management Plan
Carruth Preserve

Date of Site Visit: June 6, 2014

I. Background

1. The Carruth Preserve is located south of Dover Furnace Road in the Town of Dover, Dutchess County, NY.

   Directions: *From Route 22, take Dover Furnace Road west 0.5 miles. Park under the high tension powerline on the south side of the road. Informal access to the Preserve is via the active Metro-North railroad tracks.*

2. Basic property details

   a. Date OLC acquired property: *12/29/2003*
   b. Tax Parcel Number (Acres):
      132600-7061-00-464272 (10.82 ac)
   c. Deed Liber / Page: *22004/7137*

3. History of property acquisition: *Gorton Carruth and his brothers donated the property to Oblong Land Conservancy on December 29, 2003.*

4. Reasons for protecting property (primary, secondary): *The Preserve is located at the very northern end of the Great Swamp and its northern boundary is formed by the Swamp River. It protects a mix of habitats from riverine wetlands to upland cedar woodlands, and thus can support a diverse suite of wildlife.*

5. Restrictions if any (formal / informal) (e.g. existing easements, right-of-ways, liens, etc.): *None.*

6. Access point(s) (including Right-of-Way to property if applicable) and constraints (e.g. lack of road frontage / access): *The deed and property description include a right-of-way with reference to an at-grade crossing traversing the railroad tracks. However, despite extensive record searches, OLC has been unable to locate this right-of-way or identify any of the landmarks that the Metes and Bounds*

description cites. So, in all practicality, the Preserve is accessed either by walking down the active Metro North line or via the Swamp River. Access therefore is limited to OLC board members and carefully vetted volunteers, and the property is not open to the public.

7. Historic / prior use(s) of property: *The donors' father built the dam at Dover Furnace. A small house was built on the Preserve property and the donors used it for summer visits. This house was burnt down or demolished many years ago, but the foundation remains.*

II. Current Conditions

1. Topography: *The Carruth Preserve rises gently from both the railroad tracks and the Swamp River to a small knoll. The change in elevation is approximately 20-30 feet from the lowest to the highest point.*

2. Hydrography, Habitat and Community Types: *The Preserve's northern boundary is the Swamp River. The open, north flowing water transitions into a shallow emergent marsh habitat in this location. Shallow emergent marsh is a generally open, herbaceous dominated wetland system characterized by tussock sedge, jewel weed, sensitive fern, and rushes.*

   The western edge of the property includes a small inlet and deep emergent marsh dominated by cattails. The central upland is generally dominated by the successional red cedar woodland community type. As one moves from north to south, the cedars become mixed with ash and red maple in the overstory and barberry, bittersweet, and honeysuckle in the shrub layer.

3. Soils: *A detailed soils report is included as Appendix 1. The upland soil is Farmington-Galway complex, a rocky well-drained calcareous limestone soil series. The wetlands and flood plains are dominated by the Carlisle muck and the Sun silt loam series, both (very) poorly drained hydric soils common in the Great Swamp wetland areas.*

4. Existing improvements: *None.*

5. Historic resources if applicable: *None.*

6. Current use(s) of property: *The preserve is visited periodically by OLC board members. It is monitored annually. There is currently no active management due to the difficult access.*

7. Problems / concerns / risks / liabilities: *The Carruth Preserve is isolated from main roads and neighboring properties by the railroad tracks and the Swamp River. The primary concerns for habitat and management would be from invasive species. While the "usual suspects" like barberry, honeysuckle, bittersweet vine, garlic mustard, Russian olive, multi-flora rose, etc. are present on the preserve, there is no dominant invasive species (like mile-a-minute vine) that has taken over the preserve.*

   It is unlikely that any ATVs could access the preserve, and the threat from poaching is also relatively low. There is an industrial area about ¼ mile south of the Preserve and it is clear that one can easily cross the tracks at that location. However, the risk is low that someone crossing at that point would access the preserve and inflict significant damage.

   Finally, there is a risk of an incident from the trains—like a derailment or oil spill—but this is not something that OLC can anticipate or realistically plan for given the remote chance of occurrence, difficult access, and the organization's limited resources.

8. Current management activities: *None except for monitoring.*

9. Public access (whether existing, opportunities and constraints): *None due to the difficult access.*

10. Opportunities and constraints of adjoining properties including but not limited to: connectivity to other protected properties, unique natural and / or historic features, environmentally sensitive areas, riparian corridors, buffer from developed areas, additional point of access to property: *There are extensive undeveloped lands to the south and west, and these lands are likely to remain vacant due to their location between the tracks and the Swamp River. OLC has engaged these landowners in an attempt to permanently preserve these lands, which extend as far south as Chippewalla Road. However, these isolated acres are also not currently threatened by development, nor is development pressure in this locality anticipated for a number of years.*

III. Objectives and Goals

a. Primary opportunities to manage / encourage? *The primary opportunities for the Carruth Preserve are periodic group outings by boat to manage invasive species. The current openings in the tree cover should be maintained as unique habitat spaces on the otherwise forested parcel. Bittersweet should be cleared from trees; honeysuckle and Russian olive should be cut back and the stems "painted" with herbicide. Brush can be piled for wildlife.*

   Site work outings could be day long family or scout oriented activities which combine a trip up the Swamp River with exploration, environmental education, bioblitz/species identification, and volunteer work

b. What are main concerns / constraints? *The main constraint is the difficult access to the preserve. Tools and people would have to be brought in by canoe*

c. Management Recommendations

   i. *Monitor annually.*

   ii. *Plan work party/events annually to give members/volunteers a unique experience. Combine multiple themes of invasive species management, education, bird watching, fishing, etc.*

   iii. *Gain permission to access the field north of the Swamp River for parking, either on a regular or event basis. Discussions are underway with the power company to permit OLC access to the River to launch canoes near the Preserve.*

IV. Inspections

1. Establish schedule for conducting annual or semi-annual inspections of property. *OLC will monitor the property annually.*

V. Boundary Markers and Posting

1. Place OLC ownership signs along the railroad tracks and Swamp River.

VI. Attachments

Map 1: Location

Map 2: Aerial Photo and Features

Map 3: Soils and Topography

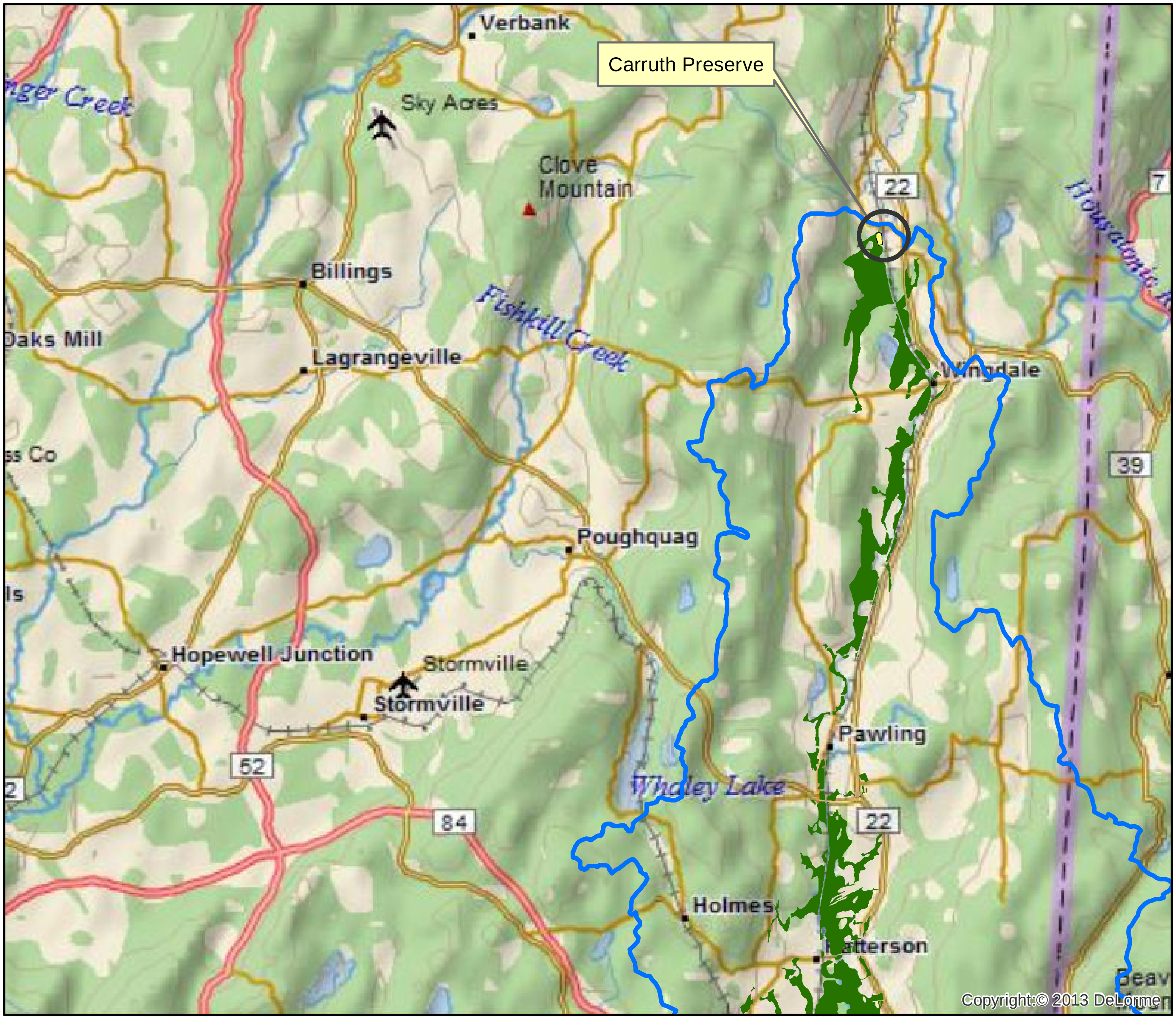
Appendix 1: Soils Report

Map 4: Great Swamp Community Types

Paul Elconin Resume and Bio

Carruth Preserve Management Plan

Map 1: Location



Legend

- Carruth
- Great Swamp
- Great Swamp Watershed

NORTH

0 1.5 3 Miles

Map Date: August 1, 2014

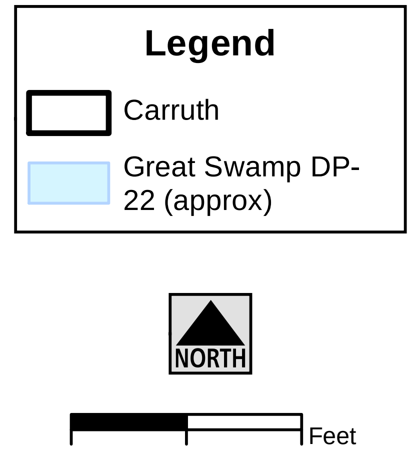
Data Sources:
Preserve boundaries from tax parcel layers courtesy of Dutchess County.
Great Swamp layer source unknown.
Great Swamp Watershed courtesyThe Nature Conservancy. Basemaps from ESRI.

Map is for documentation purposes only and was not prepared or certified by a licensed land surveyor.

Maps prepared by Paul Elconin

Carruth Preserve Management Plan

Map 2: Aerial Photo and Features



Map Date: August 1, 2014

Data Sources:
Boundaries from tax maps and are approximate. Aerial photos from NYSGIS Clearinghouse. Basemaps from ESRI. Great Swamp layer source unknown.

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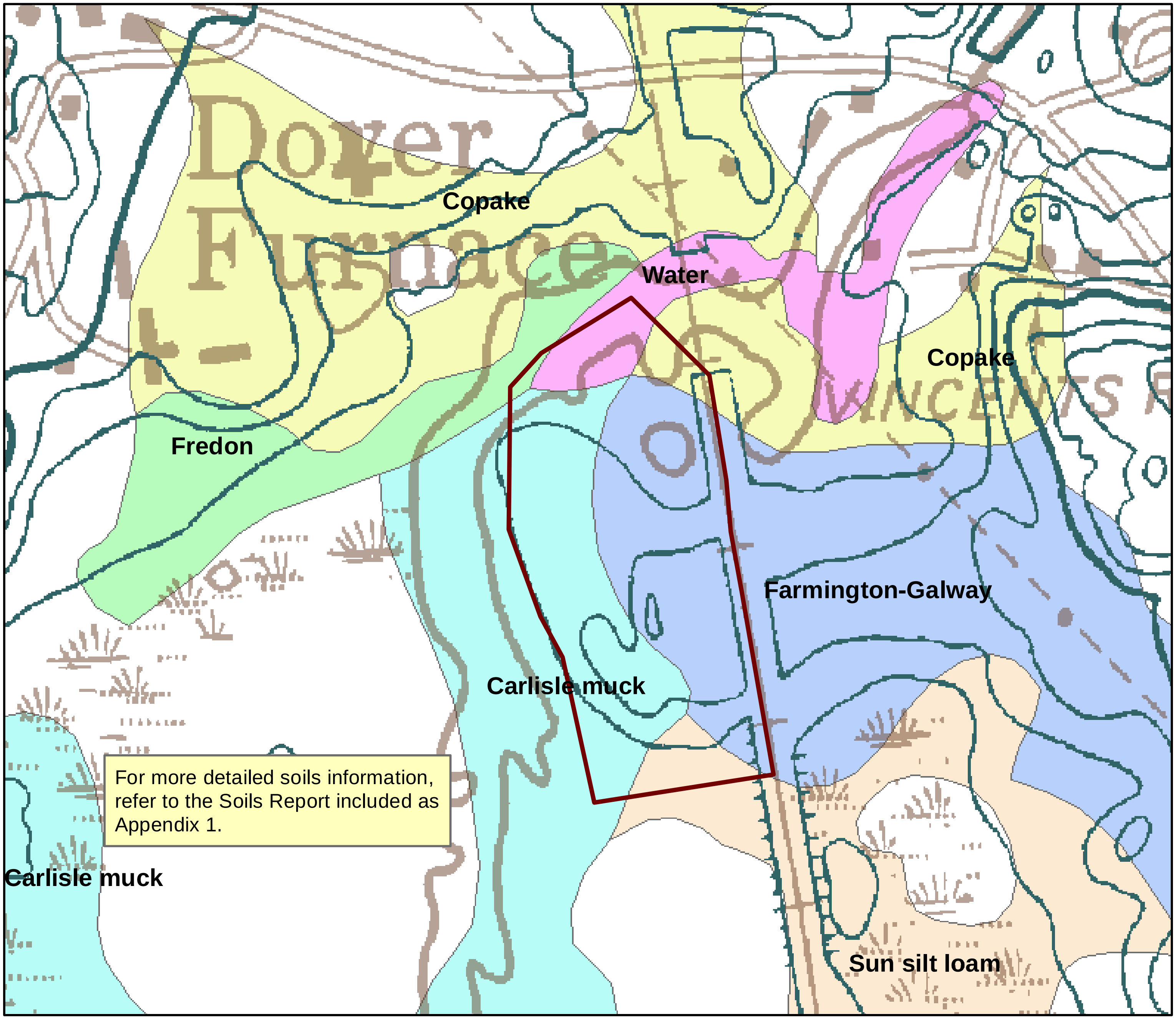
Map prepared by Paul Elconin.

Carruth Preserve Management Plan

Map 3: Soils and Topography



Legend
Carruth

NORTH

0 200 400 Feet

Map Date: August 1, 2014

Data Sources:
Boundaries from tax maps and are approximate. Aerial photos from NYSGIS Clearinghouse. Basemaps from ESRI. Great Swamp layer source unknown.

GPS Points recorded with Motion X for Iphone and/or Trimble GeoXT: locations approximate and not verified by survey. Map is for documentation purposes only and was not prepared or certified by a licensed land surveyor.

Map prepared by Paul Elconin

United States Department of Agriculture

NRCS

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

Dutchess County, New York

Carruth Preserve

July 23, 2014

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://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) 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://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

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 Web Soil Survey, the site for official soil survey information.

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Contents

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.

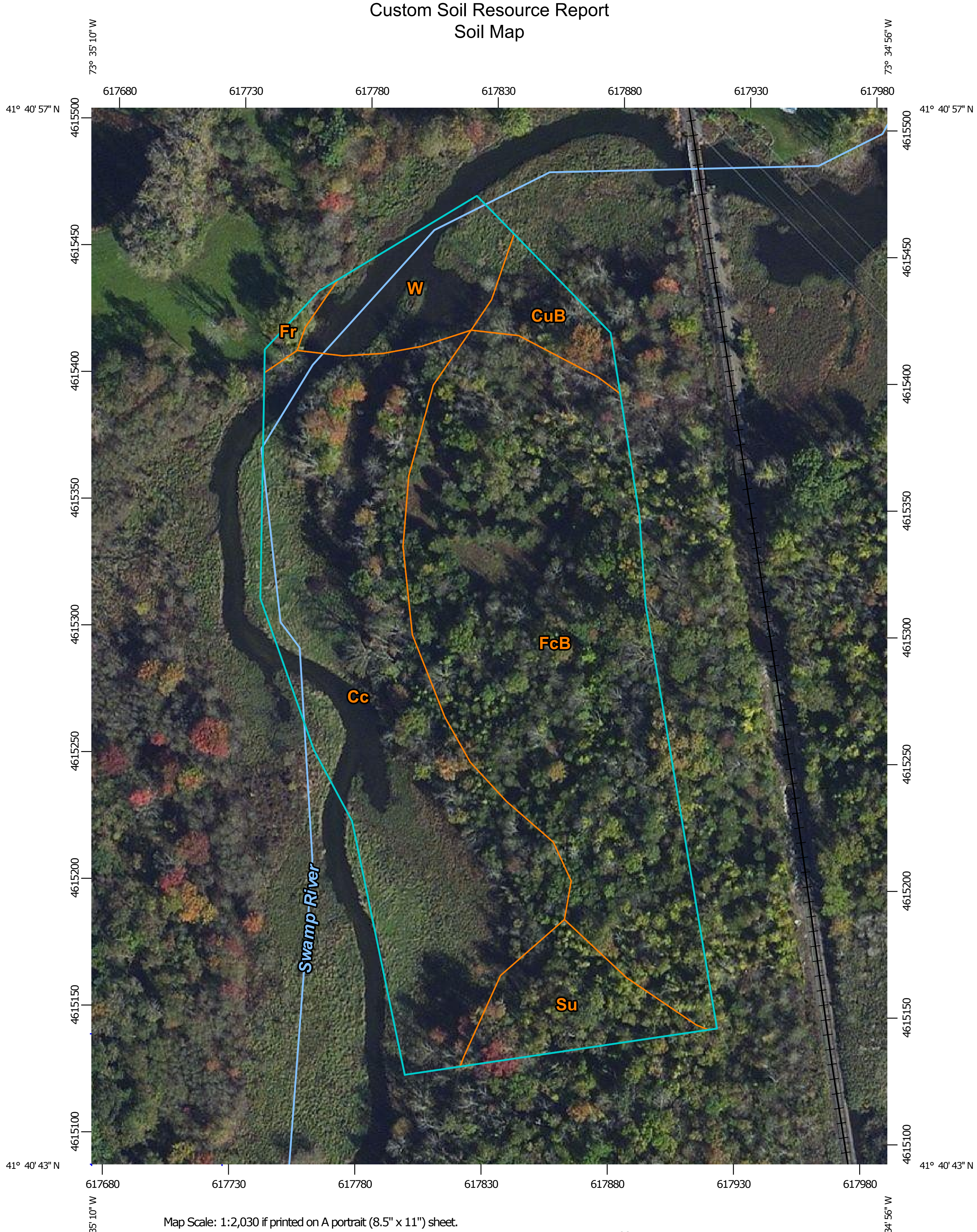
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.

Soil Map



Map Scale: 1:2,030 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 30, 60, 120, 180

Feet: 0, 50, 100, 200, 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 10, Dec 15, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

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

Dutchess County, New York (NY027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Cc	Carlisle muck	4.2	38.7%
CuB	Copake gravelly silt loam, undulating	0.4	3.4%
FcB	Farmington-Galway complex, undulating, very rocky	4.7	44.1%
Fr	Fredon silt loam	0.1	0.6%
Su	Sun silt loam	0.7	6.2%
W	Water	0.8	7.0%
Totals for Area of Interest		**10.7**	**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.

Dutchess County, New York

Cc—Carlisle muck

Map Unit Setting

Elevation: 250 to 1,000 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Carlisle and similar soils: 80 percent
Minor components: 20 percent

Description of Carlisle

Setting

Landform: Swamps, marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Deep organic material

Typical profile

H1 - 0 to 80 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water storage in profile: Very high (about 23.9 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D

Minor Components

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions

Wayland

Percent of map unit: 5 percent
Landform: Flood plains

Palms

Percent of map unit: 5 percent
Landform: Marshes, swamps

Fluvaquents

Percent of map unit: 3 percent
Landform: Flood plains

Udifluvents

Percent of map unit: 2 percent

CuB—Copake gravelly silt loam, undulating

Map Unit Setting

Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Copake and similar soils: 80 percent
Minor components: 20 percent

Description of Copake

Setting

Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy over calcareous sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 6 inches: gravelly silt loam
H2 - 6 to 36 inches: gravelly loam
H3 - 36 to 80 inches: stratified very gravelly coarse sand to gravelly loamy fine sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: A

Minor Components

Hoosic

Percent of map unit: 10 percent

Halsey

Percent of map unit: 5 percent
Landform: Depressions

Fredon

Percent of map unit: 5 percent
Landform: Depressions

FcB—Farmington-Galway complex, undulating, very rocky

Map Unit Setting

Elevation: 100 to 1,000 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Farmington and similar soils: 40 percent
Galway and similar soils: 30 percent
Minor components: 30 percent

Description of Farmington

Setting

Landform: Ridges, till plains, benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 15 inches: very fine sandy loam
H3 - 15 to 19 inches: unweathered bedrock

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Calcium carbonate, maximum in profile: 5 percent
Available water storage in profile: Very low (about 2.1 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Description of Galway

Setting

Landform: Ridges, till plains, benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy till

Typical profile

H1 - 0 to 6 inches: gravelly loam
H2 - 6 to 30 inches: gravelly loam
H3 - 30 to 31 inches: gravelly loam
H4 - 31 to 35 inches: unweathered bedrock

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C

Minor Components

Georgia

Percent of map unit: 10 percent

Stockbridge

Percent of map unit: 10 percent

Rock outcrop

Percent of map unit: 5 percent

Massena

Percent of map unit: 4 percent

Sun

Percent of map unit: 1 percent

Landform: Depressions

Fr—Fredon silt loam

Map Unit Setting

Elevation: 250 to 1,200 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

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

Description of Fredon

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy over sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 31 inches: very fine sandy loam
H3 - 31 to 70 inches: stratified very gravelly sand to loamy fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Farmland classification: Prime farmland if drained
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D

Minor Components

Fredon, poorly drained

Percent of map unit: 5 percent
Landform: Depressions

Unnamed soils, glacial outwash

Percent of map unit: 5 percent

Halsey

Percent of map unit: 5 percent
Landform: Depressions

Su—Sun silt loam

Map Unit Setting

Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Sun and similar soils: 80 percent
Minor components: 20 percent

Description of Sun

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas

Typical profile

H1 - 0 to 4 inches: silt loam
H2 - 4 to 22 inches: loam
H3 - 22 to 80 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly 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 0 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum in profile: 15 percent

Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups
Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D

Minor Components

Sun, stony
Percent of map unit: 5 percent
Landform: Depressions

Canandaigua
Percent of map unit: 5 percent
Landform: Depressions

Massena
Percent of map unit: 5 percent

Palms
Percent of map unit: 5 percent
Landform: Swamps, marshes

W—Water

Map Unit Setting
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition
Water: 100 percent

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

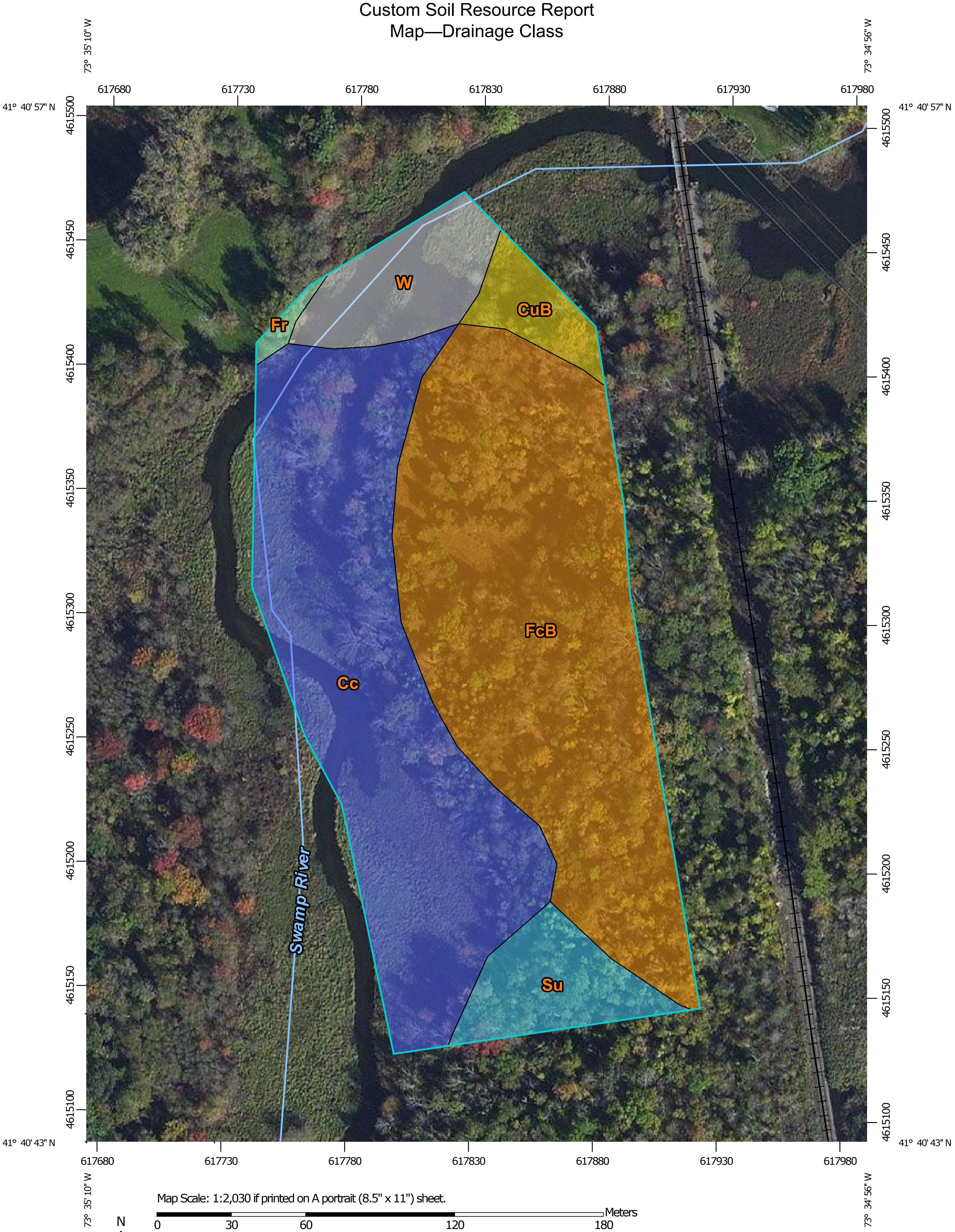
Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Drainage Class

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Map—Drainage Class



Map Scale: 1:2,030 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0, 30, 60, 120, 180

Feet: 0, 50, 100, 200, 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Lines

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Points

- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 10, Dec 15, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

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.

Table—Drainage Class

Drainage Class— Summary by Map Unit — Dutchess County, New York (NY027)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Cc	Carlisle muck	Very poorly drained	4.2	38.7%
CuB	Copake gravelly silt loam, undulating	Well drained	0.4	3.4%
FcB	Farmington-Galway complex, undulating, very rocky	Somewhat excessively drained	4.7	44.1%
Fr	Fredon silt loam	Somewhat poorly drained	0.1	0.6%
Su	Sun silt loam	Poorly drained	0.7	6.2%
W	Water		0.8	7.0%
Totals for Area of Interest			**10.7**	**100.0%**

Rating Options—Drainage Class

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

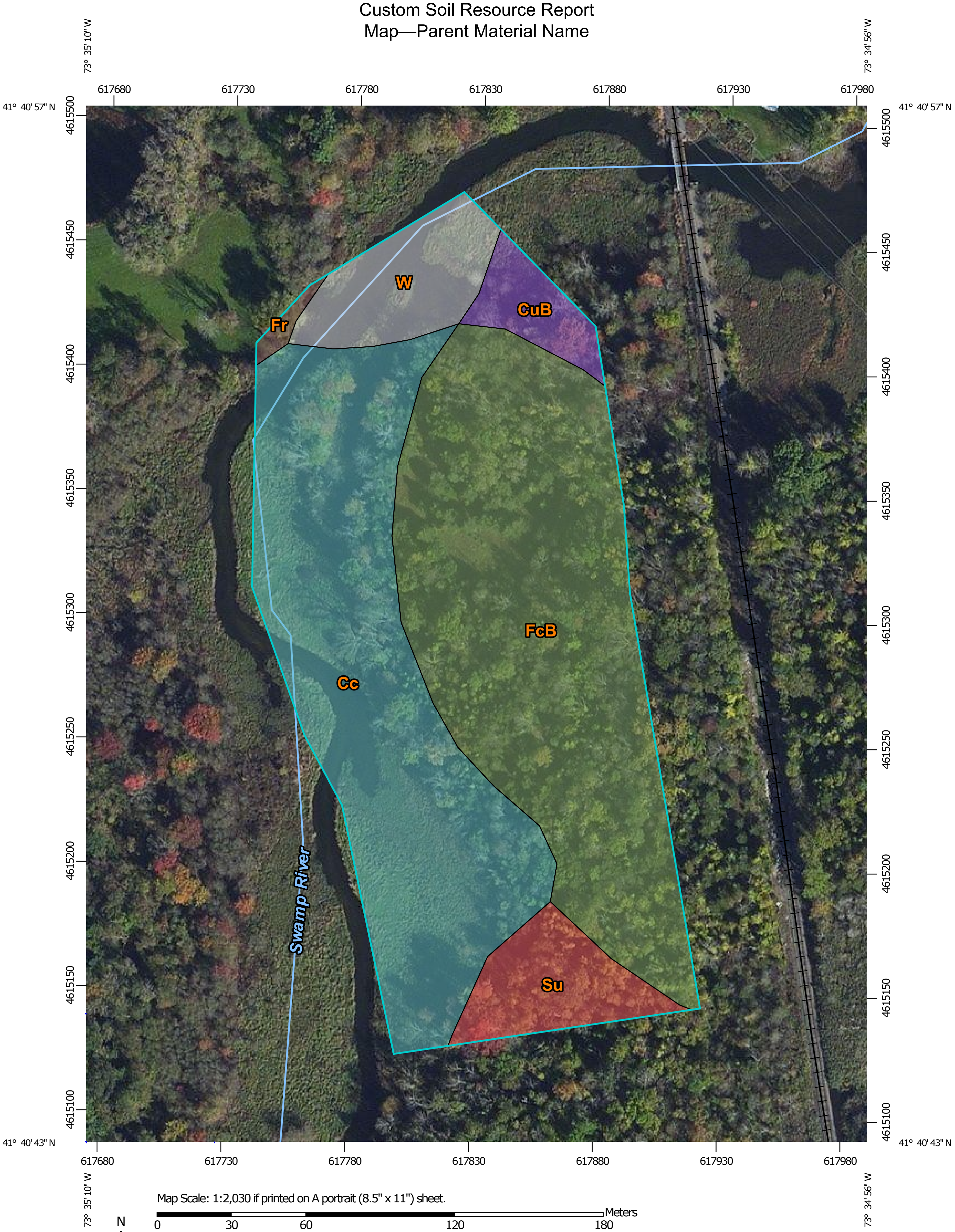
Parent Material Name

Parent material name is a term for the general physical, chemical, and mineralogical composition of the unconsolidated material, mineral or organic, in which the soil forms. Mode of deposition and/or weathering may be implied by the name.

The soil surveyor uses parent material to develop a model used for soil mapping. Soil scientists and specialists in other disciplines use parent material to help interpret soil boundaries and project performance of the material below the soil. Many soil properties relate to parent material. Among these properties are proportions of sand, silt, and clay; chemical content; bulk density; structure; and the kinds and amounts of rock fragments. These properties affect interpretations and may be criteria used to separate soil series. Soil properties and landscape information may imply the kind of parent material.

For each soil in the database, one or more parent materials may be identified. One is marked as the representative or most commonly occurring. The representative parent material name is presented here.

Map—Parent Material Name



Map Scale: 1:2,030 if printed on A portrait (8.5" x 11") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- deep organic material
- loamy over calcareous sandy and gravelly glaciofluvial deposits
- loamy over sandy and gravelly glaciofluvial deposits
- loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas
- loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits
- Not rated or not available

Soil Rating Lines

- deep organic material
- loamy over calcareous sandy and gravelly glaciofluvial deposits
- loamy over sandy and gravelly glaciofluvial deposits
- loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas
- loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits
- Not rated or not available

Soil Rating Points

- deep organic material
- loamy over calcareous sandy and gravelly glaciofluvial deposits
- loamy over sandy and gravelly glaciofluvial deposits
- loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas
- loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 10, Dec 15, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

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.

Table—Parent Material Name

Parent Material Name— Summary by Map Unit — Dutchess County, New York (NY027)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Cc	Carlisle muck	deep organic material	4.2	38.7%
CuB	Copake gravelly silt loam, undulating	loamy over calcareous sandy and gravelly glaciofluvial deposits	0.4	3.4%
FcB	Farmington-Galway complex, undulating, very rocky	loamy till or congeliturbate derived from limestone, dolomite, shale, and sandstone, and in many places mixed with wind and water deposits	4.7	44.1%
Fr	Fredon silt loam	loamy over sandy and gravelly glaciofluvial deposits	0.1	0.6%
Su	Sun silt loam	loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas	0.7	6.2%
W	Water		0.8	7.0%
Totals for Area of Interest			**10.7**	**100.0%**

Rating Options—Parent Material Name

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

References

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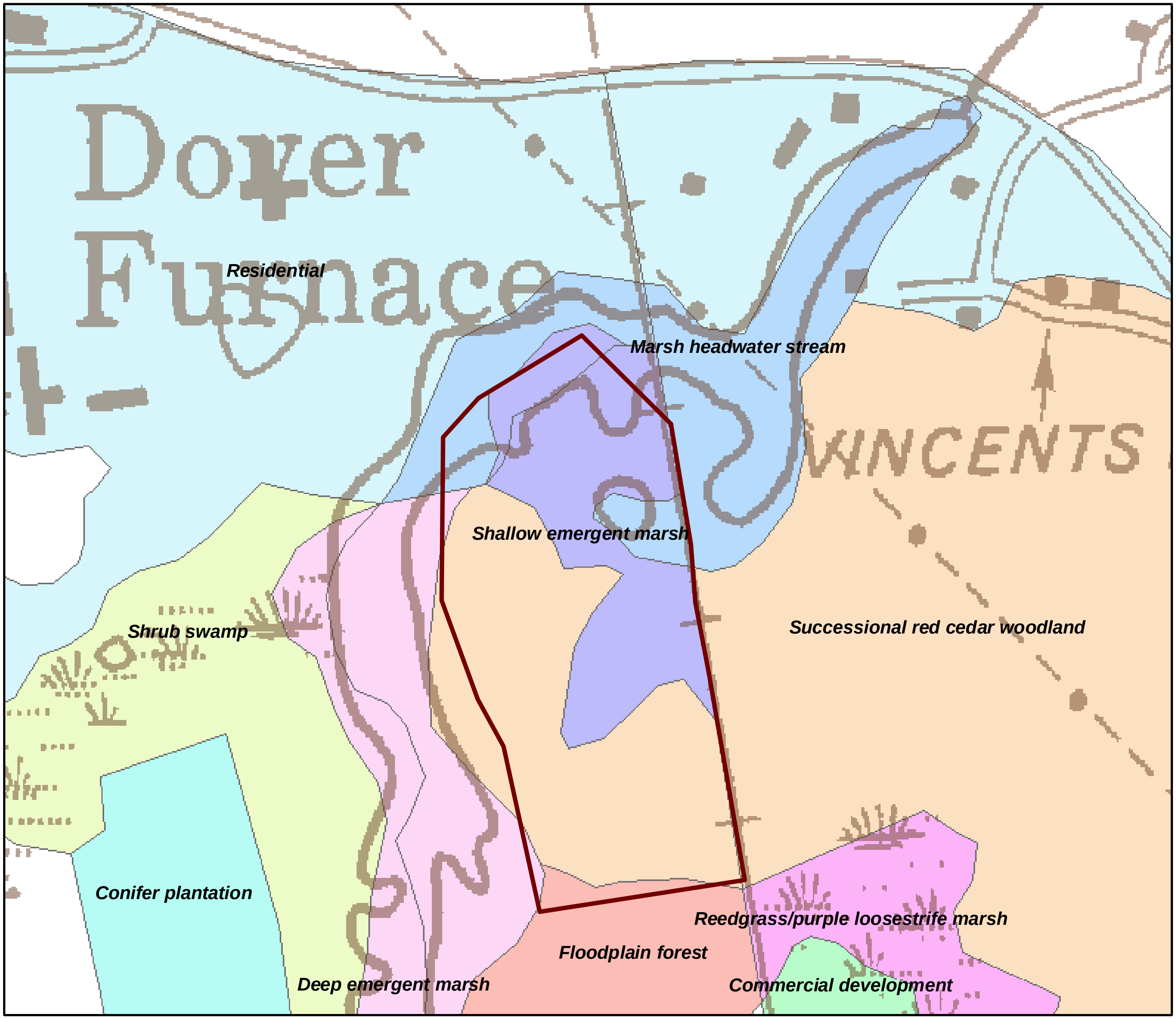
Carruth Preserve Management Plan

Map 4: Great Swamp Community Types



OBLONG LAND CONSERVANCY

Legend

Carruth

NORTH

0 200 400 Feet

Map Date: August 1, 2014

Data Sources:
Boundaries from tax maps and are approximate. Aerial photos from NYSGIS Clearinghouse. Basemaps from ESRI. Great Swamp layer source unknown.

GPS Points recorded with Motion X for Iphone and/or Trimble GeoXT: locations approximate and not verified by survey. Map is for documentation purposes only and was not prepared or certified by a licensed land surveyor.

Map prepared by Paul Elconin

Paul Elconin Qualifications

PAUL ELCONIN

79 Mitchell Road, Somers, NY 10589 § cell (203) 650-4679 § paul.elconin@gmail.com

Paul Elconin has over 13 years' experience with diverse New York nonprofit organizations as a program manager, consultant, board member, and coalition leader. As Stewardship Coordinator at the Open Space Institute he managed a land conservation program over a 17 county area, supervised the work of consultants, partners, and staff, prepared the organization's accreditation and reaccreditation application, and trained partners to enhance their proficiencies and capacity. As an independent consultant, Mr. Elconin collaborates with nonprofit clients, helping them achieve organizational goals and tailoring solutions to the appropriate scale and organizational capacity. His consulting projects include preparing management plans and baseline documentation reports and advising on capacity and outreach. Clients include the Land Trust Alliance, Oblong Land Conservancy, Putnam County Land Trust, Woodstock Land Conservancy, and the North Salem Open Land Foundation.

PAUL ELCONIN

79 Mitchell Road, Somers, NY 10589 ▪ office (845) 277-1810 ▪ cell (203) 650-4679 ▪ paul.elconin@gmail.com

ENVIRONMENTAL PROGRAM LEADER

Stewardship • Partnerships • Coalition Leadership
Organizational Development and Strategy • Consulting

Extensive experience and career-long commitment to developing and managing strong environmental programs and building organizational capacity for sustained growth and impact.

Specific expertise includes:

- Forging and maintaining vital partnerships with land trusts, towns, State agencies, other non-profits, and citizen groups;
- Providing collaborative technical and advisory consulting support to conservation organizations;
- Supervising and guiding staff and consultants;
- Fostering organizational development through such activities as board development, fundraising, volunteer coordination, and strategy setting; and
- Guiding development proposals through the local planning board approval process.

PROFESSIONAL EXPERIENCE

INDEPENDENT CONSERVATION CONSULTING — ***2008 - Present***

- **Diverse Organizational Consulting Services:** Closely collaborate with non-profit clients—including the Land Trust Alliance (LTA)—on organizational goals and priorities, including:
  - **Capacity building, outreach, and organizational development** for NY Land Trusts as the Circuit Rider for the NY Conservation Partnership Program.
  - **Drafting organizational policies and accreditation applications.**
  - **Development of management plans** for land trust preserves (with and without public amenities).
  - **Preparation of conservation easement baseline documentation reports.**
- **Project Leadership:** Lead teams of partners to deliver key projects with sustained results. Consistently meet industry standards (LTA Standards and Practices).

OPEN SPACE INSTITUTE, INC. (OSI) — ***2000 - 2013***
STEWARDSHIP COORDINATOR and MID-HUDSON LAND STEWARD

- **Program Management:** Managed extensive stewardship program in eastern New York State and in the six-county mid-Hudson region. Ensured that 344 easements and 11,000± acres of fee lands in 17 counties were monitored and managed by staff, consultants, and partners. Managed expansion of program from 200 to 344 easements.
- **Partnerships:** Guided 18 municipal, land trust, and agency partners to monitor and document easements and worked with partners to manage many fee-owned lands. Closely collaborated with agency and NGO staff on diverse programs. Represented OSI on key regional coalitions.
- **Capacity Building:** Trained land trust and municipal partners in stewardship tasks to augment internal team. Provided hands-on field training as well as technical expertise, materials, and coaching on outreach to landowners.
- **New Acquisitions:** Negotiated conservation easements and fee land acquisitions and managed pre-closing due diligence including Phase I ESA, survey, title, documentation, and board review.
- **Budgetary:** Developed and tracked organization's ±$1 million annual stewardship budgets. Budget approximately doubled during tenure.

PAUL ELCONIN

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THE NATURE CONSERVANCY-EASTERN NEW YORK CHAPTER ***2000***
GREAT SWAMP PROGRAM DIRECTOR

- Completed The Nature Conservancy's Site Conservation Plan for the Great Swamp and presented the plan to State officials including Governor Pataki.
- Supported other area non-profits with local planning board project review.

THE CHAZEN COMPANIES ***1997 - 2000***
BIOLOGIST/PLANNER

- Wrote and presented Draft and Final Environmental Impact Statements and coordinated the work of the Chazen team, clients, and subcontractors to ensure timely completion.
- Other duties: Presenting site plans to municipal boards for planning and zoning approval; SEQRA documentation; drafting zoning ordinances; wetland delineation and permitting.

OTHER ENVIRONMENTAL LEADERSHIP EXPERIENCE

FRIENDS OF FAHNESTOCK AND HUDSON HIGHLANDS STATE PARKS (FOFHH) ***2010 - Present***
VICE PRESIDENT

- **Coalition Leadership:** Steer strategic partnership of citizens, NGOs, and municipalities on FOFHH's Hudson Fjord Trail; persuaded key citizens group to join FOFHH instead of forming independent NGO. Appointed to Steering Committee for Hudson Fjord Trail master plan.
- **Partnerships:** Serve as key partner/contact for NYSOPRHP staff at all levels on projects, mission, and advocacy. Work closely with Scenic Hudson on the Hudson Fjord Trail and with Open Space Institute on joint fundraising for an ambitious capital project in Fahnestock State Park.
- **Organizational Development and Leadership:** Co-led transformation of organization's activities, significantly strengthening its reputation, influence, and reach in <3 years.
- **Board Development:** Recruited 3 new board members over the last 12 months including internationally acclaimed singer/songwriter Dar Williams.
- **Fundraising:** Play core role in grant writing, social media campaigns, and mailings.

EDUCATION

STATE UNIVERSITY OF NEW YORK-COLLEGE OF ENVIRONMENTAL SCIENCE AND FORESTRY
M.S., Forest Resources Management ***1997***

YALE UNIVERSITY
B.S., Environmental Biology ***1991***

OTHER PROFESSIONAL NOTES

- Excellent writing, research, and communication skills.
- Proficient with Microsoft Professional Office.
- Experienced photographer: photos have been used on OSI website and in publications, on the Hudson Valley Greenway website, and by other organizations.