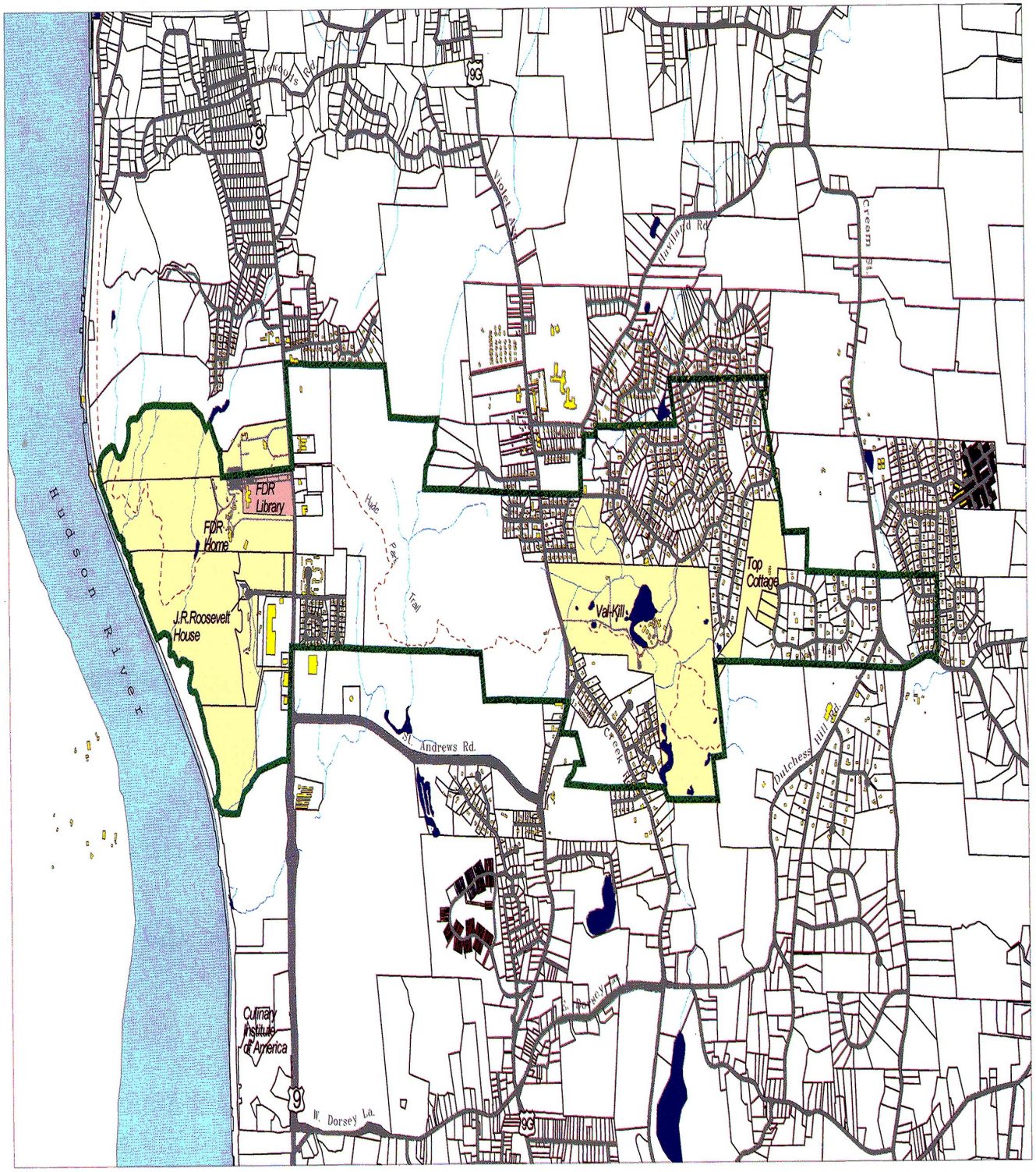
File III
Data Collection

Site Maps
Roosevelt Land Ownership Map
Site Map
Soil Map
Topographical Map
Current Map
On-site Data Collection Sheets
Forestry Terminology



Legend

- Roosevelt Estate Boundary
- National Park Service
- National Archives
- Ownership Parcels
- Structures
- Hyde Park Trail
- Roadway
- Ponds
- Streams

0 0.2 0.4 0.6 0.8 Miles

Roosevelt Family Land Ownership Boundary 1877 - 1945

Data Sources:
Dutchess Co. Real Property Tax Agency
U.S. Geological Survey
National Park Service

Production: ROVA GIS Lab, 11/1/2000
By: David J. Hayes

Blue Square = Eastern White Pine Plantation where students will study.

Soil Map

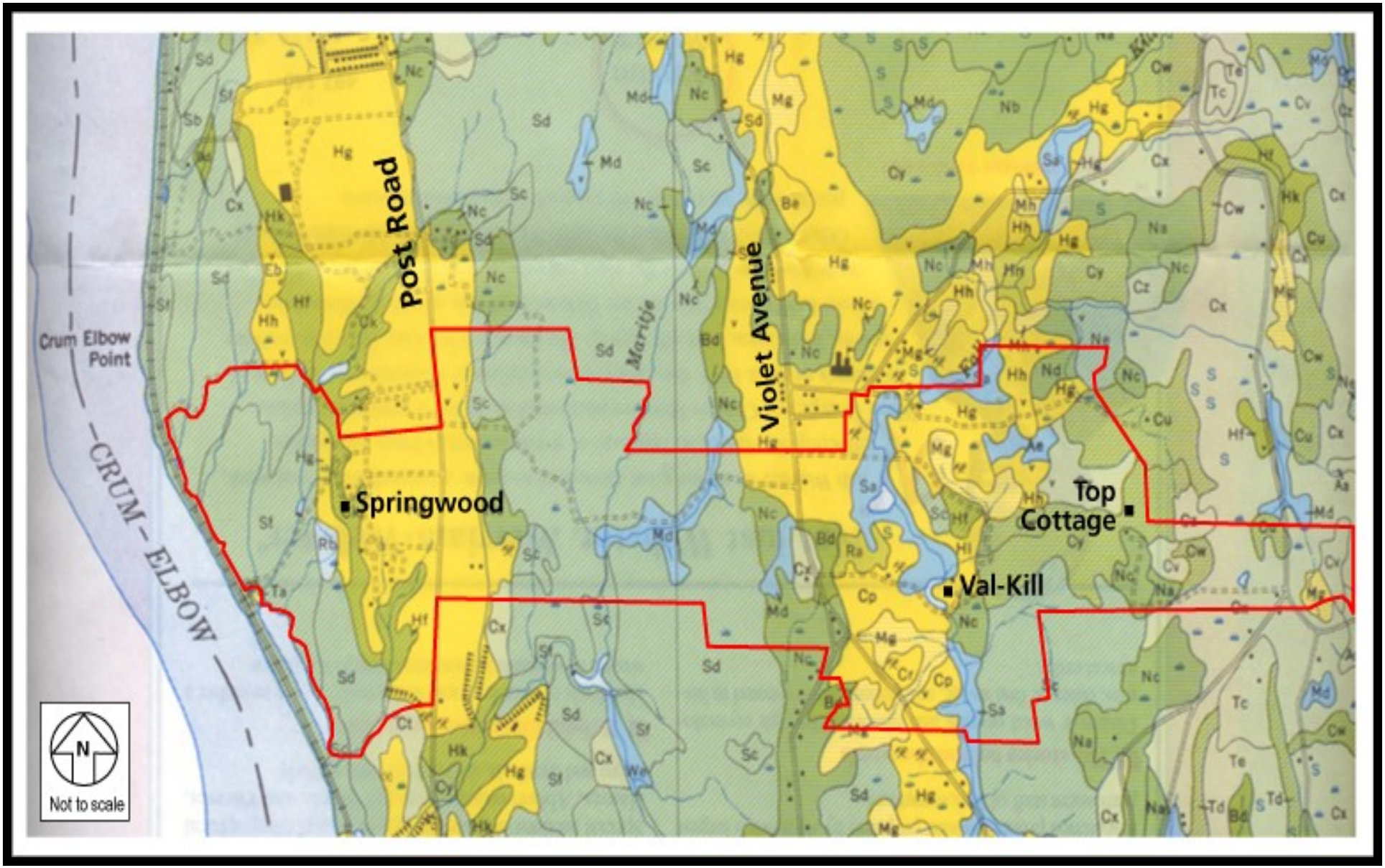


Figure 1.2: Soils map of the Roosevelt Estate reflecting geologic landforms illustrated in Figure 1.1. Yellows indicate rich soils on level land suitable for agriculture; greens generally indicate thinner, poorer soils on uneven, sloping ground; and blues indicate wetland soils. The red dashed line indicates the boundaries of the Roosevelt Estate in 1945. U.S. Department of Agriculture, *Soil Survey / Dutchess County* (Washington: USDA, surveyed 1939, printed 1955), annotated by SUNY ESF.

Topographical Map

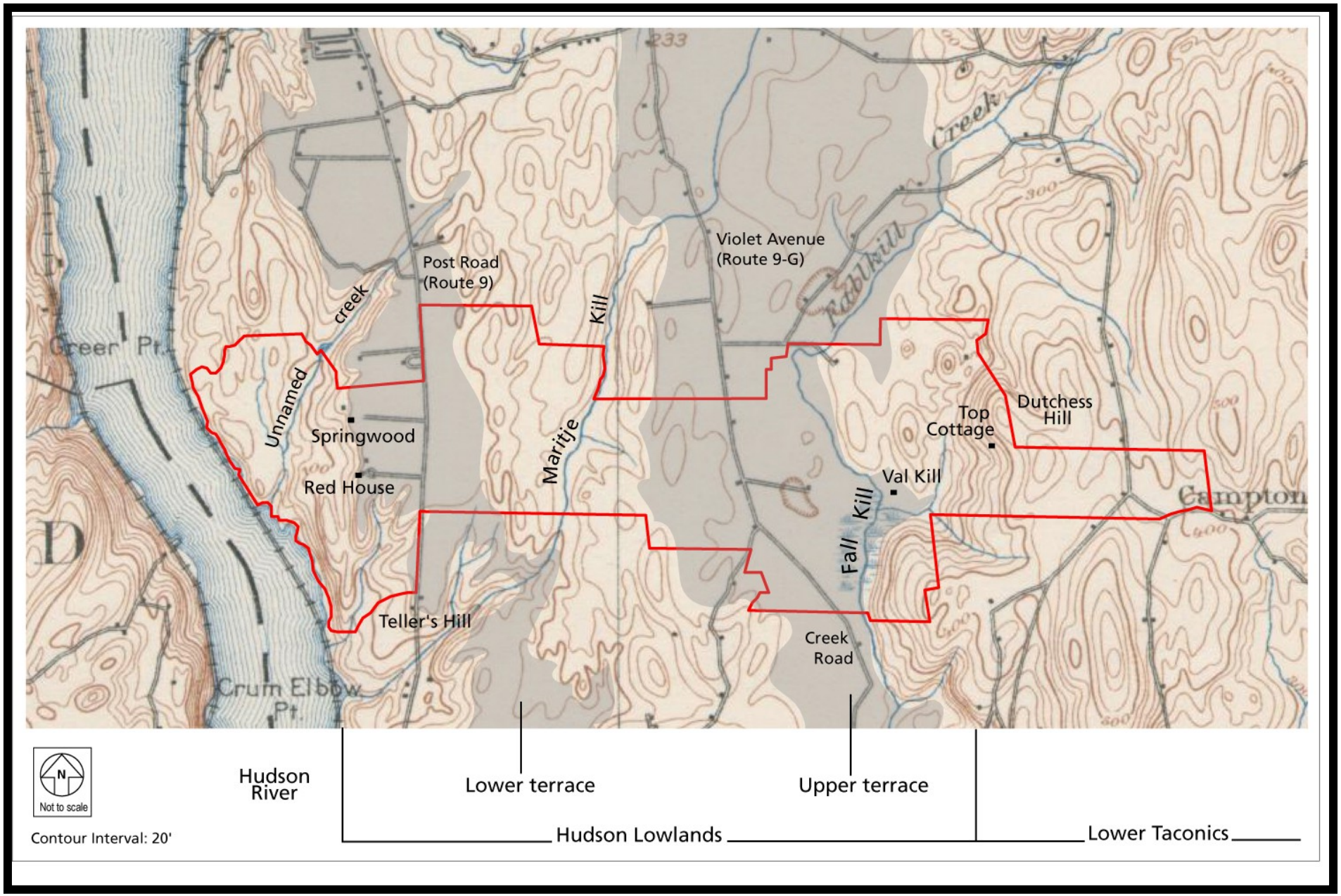


Figure 1.1: Topographic map illustrating physiographic provinces, geologic landforms, and hydrology of the Roosevelt Estate. The gray shaded areas indicate the approximate extent of the river terraces, and the red dashed line represents the boundaries of the Roosevelt Estate in 1945. Detail, USGS Rhinebeck 15 minute quadrangle map, 1898; annotated by SUNY ESF.

Current Map

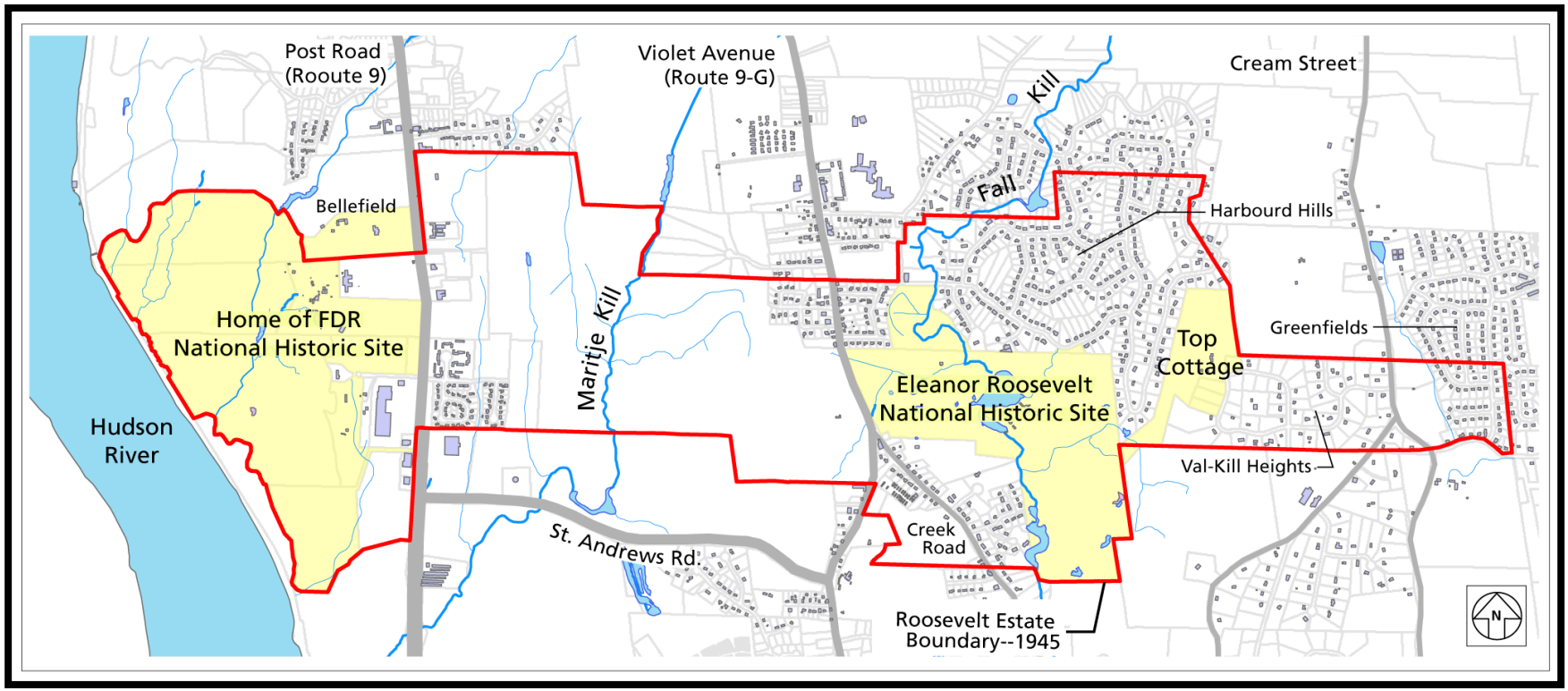


Figure 6.1: Map of the Roosevelt Estate showing current (2003) development and National Park Service property (shaded in yellow). Dutchess County Real Property Tax Agency, annotated by SUNY ESF.

FDR as a Tree Farmer- On-Site Data Collection Sheet Instructions

TREE PLANTATION INVENTORY PROCEDURES

1. Identify stand ID code (from maps) and flag the perimeter of stand.

2. GPS the stand boundary.

3. Determine stand slope & aspect.

4. Tally all woody stems >1 inch DBH or >2 meters high.

   a. Determine species.

   b. For diameter, measure using diameter tape or calipers to nearest 0.1 inches. (For calipers, take 2 measurements at 90 degrees and average the readings.) Take diameter readings at 3.5 feet above ground level on the uphill side of the stem. Mark each stem as it is tallied with a vertical RED mark on the north side of the stem using lumber crayon.

   c. Measure total height to nearest foot using clinometer at 1 chain (66 ft) distance from stem.

   d. Measure live crown length.

   e. Determine crown position.

   f. Determine Crown Vigor class

   g. Record if any stem defects are present (rot, scars, lightning, etc.)

   h. Determine Crown Dieback class.

   i. Note any stress indicators present (insects, disease, erosion, wind throw, human (includes ATV use).

5. Flag 4 dominant or co-dominant trees well-spaced across the stand with BLUE flagging. Install a tree number tag with the following information:

_____	- _-----_____	- _____
Stand ID code (from data sheet)	Sequential # 1, 2, 3, or 4	Date (YYYYMMDD)

An example might be: R-2-20060718

6. Take a series of photographs of the stand.

7. Make a sketch map of the stand showing such thing as:
   - areas of disturbance or wind throw
   - water features, culverts
   - roads/trails/signs
   - walls & fences
   - openings in canopy

FDR as a Tree Farmer- On-Site Data Collection Sheet Instructions

DEFINITIONS:

Crown: that potion of the tree from the lowest living foliage to the top, ignoring sprigs and crown dieback

Open Grown – trees with crowns that received full light from above and from all sides throughout most of its life, particularly during its early developmental period.

Dominant – trees with crown extending above the general level of the crown canopy and receiving full light from above and partly from the sides. These trees are taller than the average trees in the stand and their crowns are well developed, but they could be somewhat crowded on the sides. Also, trees whose crowns have received full light from above and from all sides during early development and most of their life. Their crown form or shape appears to be free of influence from neighboring trees.

Co-dominant – trees with crowns at the general level of the crown canopy.
Crowns receive full light from above but little direct sunlight penetrates their sides. Usually they have medium-sized crowns and are somewhat crowded from the sides. In stagnated stands, co-dominant trees have small-sized crowns and are crowded on the sides.

Intermediate – trees that are shorter than dominants and co-dominant, but their crowns extend into the canopy of co-dominant and dominant trees. They receive little direct light from above and none from the sides. As a result, intermediate trees usually have small crowns and are very crowded from the sides.

Suppressed – trees with crowns entirely below the general level of the crown canopy that receive no direct sunlight either from above or the sides.

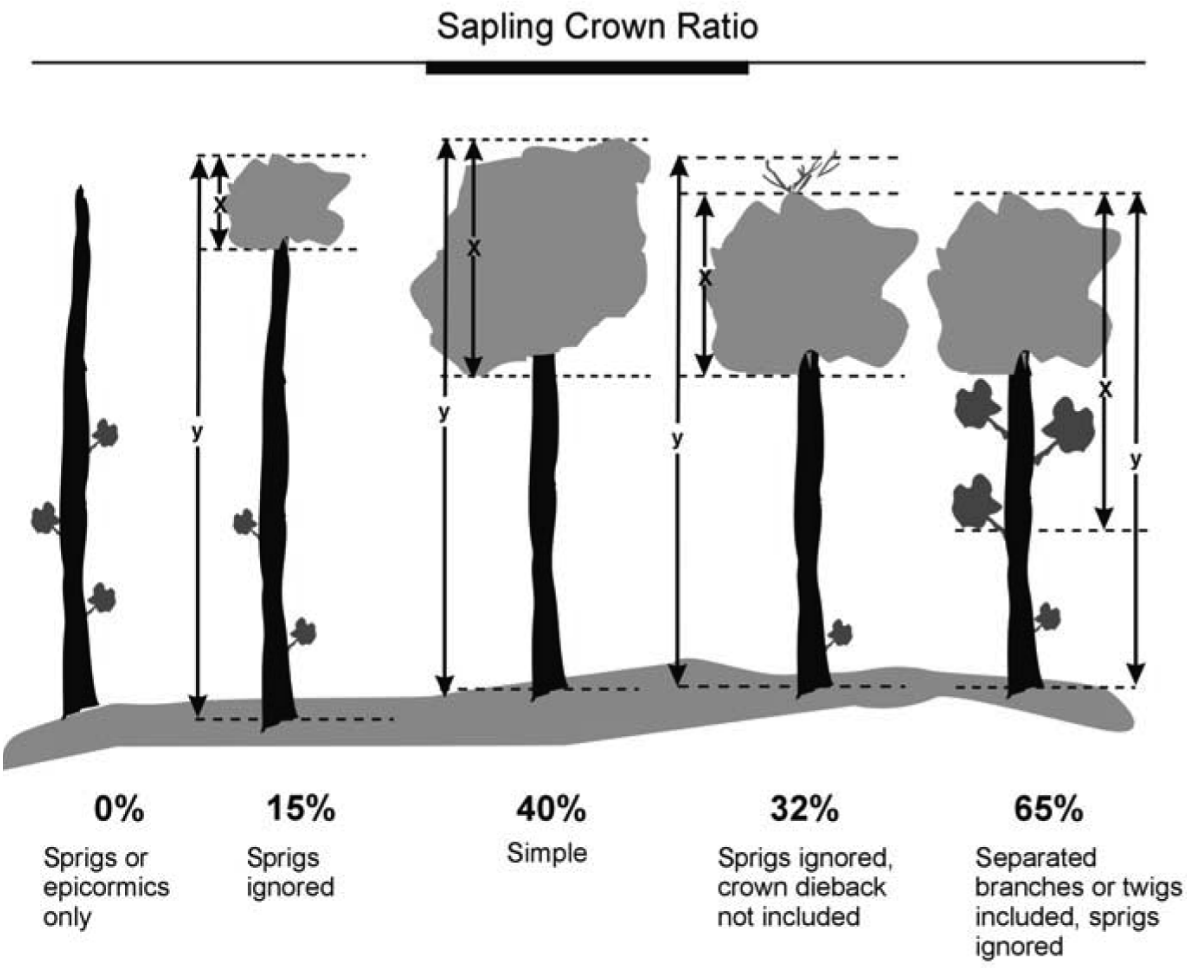
Understory: - vegetation (woody and herbaceous) which is adapted for low light conditions and will remain as low-growing on the forest floor; or smaller size classes of tree species (regeneration) which have not yet reached 1 inch DBH or 2 meters in height.

Crown Dieback - Recent branch mortality in the upper and outer portions of the live crown. Shading or branch mortality due to competition not included. Measured as a % of the crown area affected, recorded in 10% classes.

Windthrow – trees damaged by wind events, either partially or fully downed.

Live Crown Ratio – Percentage of live crown compared to total height.

FDR as a Tree Farmer- On-Site Data Collection Sheet Instructions



FDR as a Tree Farmer- On-Site Data Collection Sheets
Tree Plantation Inventory Data Sheet

Sheet _____of_____

Date: _____ Stand ID : _____ Establishment Year if Known: _____

Slope _____ Aspect: _____ Stand Size: _____

Species Code	Diam @ 3.5 ft	Total Height (ft)	Live Crown Length (ft)	Crown Position	Crown Vigor	Stem Defects? (Y/N)	Crown Dieback %	Stressors	Core # if Extracted

Species Codes:

Amer Beech	AB
Basswood	BA
Black Birch	BB
Chestnut Oak	CO
E. White Pine	WP
Eastern Hemlock	HE
Norway Maple	NM
Norway Spruce	NS
Red Oak	RO
Spicebush	SP
Sugar Maple	SM
Tree of heaven	AI
Tulip-poplar	TP
Viburnum	VI
White Ash	WA
White Oak	WO

Crown Vigor

1: healthy (<10% damage)
2: light decline (10-25% damage)
3: moderate decline (26-50% damage)
4: severe decline (>50%) damage
5: dead-natural
6: dead-human caused.

Stressors:

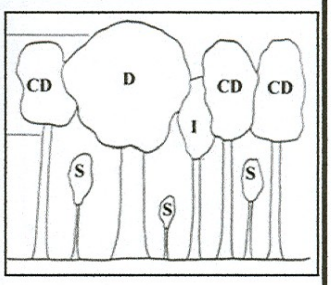
I: Insect
D. Disease
W: Windthrow
E: Erosion
H: Human-caused
O: Other

Additional Species:

_____
_____
_____
_____
_____
_____
_____
_____

Crown Position

D: Dominant
CD: Co-dominant
I: Intermediate
S: Suppressed
U: Understory
O: Open Grown



TALLY ALL WOODY STEMS >2m high or >1" DBH

Plantation Inventory Form.xls 6/28/2006

Crew Members: _____
_____

FDR as a Tree Farmer- On-Site Data Collection Sheets
Tree Plantation Inventory Data Sheet

Plot: _____ **Date:** _____

Spp	Cover Class

Code	Cover Class Description
r	rare, single plant, insignificant
t	sporadic, few plants scattered in plot, cover <1%
1	cover 1-5%
2	cover 5-25%
3	cover 25-50%
4	cover 50-75%
5	cover 75-100%

Soils Information

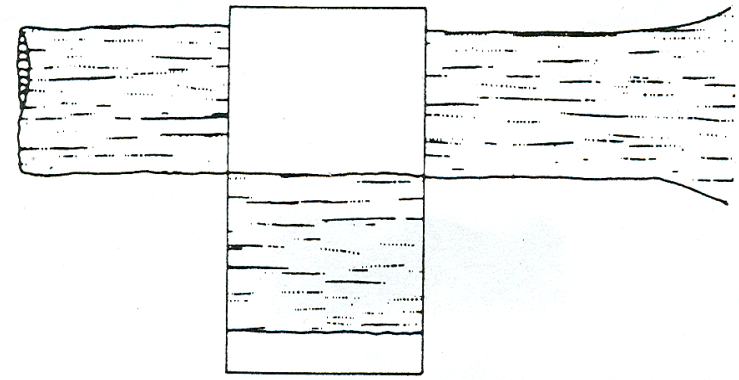
General Stand Description:

Species Codes:

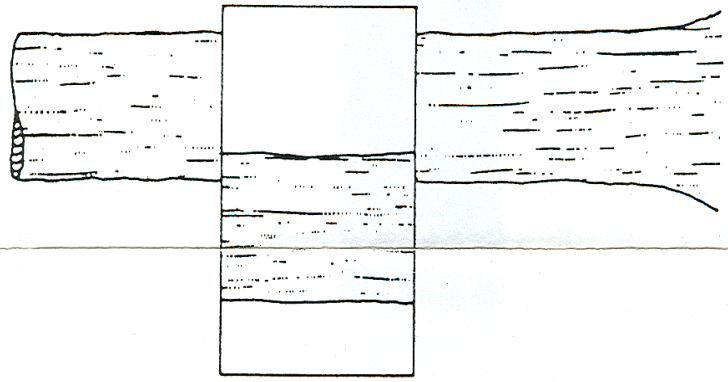
E. White Pine	WP	Black Birch	BB
Eastern Hemlock	HE	Viburnum	VI
Sugar Maple	SM	Basswood	BA
White Ash	WA	Beech	AB
White Oak	WO		
Red Oak	RO		
Chestnut Oak	CO		
Spicebush	SP		

FDR as a Tree Farmer– Prism tool sheet

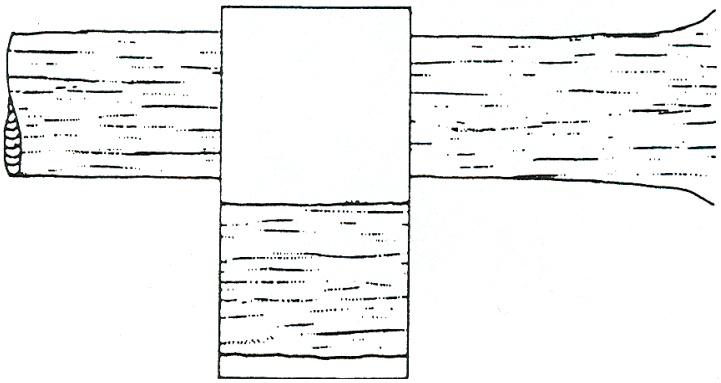
TALLY PROCEDURE FOR WEDGE PRIZM



TALLY EVERY OTHER ON BORDERLINE



TALLY



NO TALLY

Adapted from Bruce, 1955.

Wildlife Inventory Collection Sheet

Nesting Birds: Date_____ Site_____ Compartment_____

Mammals: Date_____ Site_____ Compartment_____

Amphibians: Date_____ Site_____ Compartment_____

Understory: Date_____ Site_____ Compartment_____

Notes:

What students need to know to develop their Management Plan:

- Know habitat requirements.
- Know forest cover types & forest characteristics
- Inventory associated habitats
- Forest management plan with specific objectives for species & habitats

Options:
Clear cut
Pen shelter woods
Intermediate thinning
Closed shelter woods

Management Plan:

- Describe plot study compartments.
- Draw, sketch and photographs the forest plot (cover types, tree stands, wet lands, fields roadsides, etc.)
- Map: soils
  - Topography
  - Timber types
  - Base map
  - Compartments
  - Aerial photos
  - Wood production capability
  - Sustainability plan
  - Compare/contrast to FDR's management plan.
- Measurements: Site index, timber volume
- Evaluate habitat potential
  Wildlife survey (keystone species, birds, amphibians, mammals)
  Potential timber sales
  Potential improvements
- Describe, prescribe, and explain your recommendations and reasoning.
- Include a budget & time line.
- Monitor and evaluate results

Sustainability & Global Warming:
"No one can predict the future—how people will live, or what exactly they will need—but it is possible to foresee the likely effects of some of today's decisions and to make choices that honor the interests of present and future generations"
(President's Council on Sustainable Development 1996)

Sustainability is a complex idea involving environmental, social, and economic factors. Forest sustainability considers the following:

- How to retain and use forests to meet human needs.
- How to preserve the health of forest ecosystems in perpetuity. (infinity, eternity)

Assessing Woodlot Potential

Evaluating woodland lots for its potential response to timber management involves consideration of the following:

1. Tract Size
2. Accessibility
3. Terrain
4. Soils
5. Species (size age, quality, density)

Economically efficient management =

- Cost of labor
- Equipment
- Technical assistance

Soil characteristics: Biological potential

- Soil Types (defined by slope & stoniness) Use geological soil typing book SCS maps
- Soil criteria
  1. productivity of soil cubic ft. of wood, which soil can grow per acre, per year.
  2. Soil credibility

Limitations of soil supportive equipment
Probability of seedling survival
Probability of wind throw. (capability of tree roots to withstand wind)
Wood production capability (fertility & moisture holding capacity).
Poor land use.
Erodibility (low, medium , high)
Seedling mortality
Frost heaving

Tree Id:

Most valuable timber
Hardwoods
Softwoods

More valuable: Oak, sugar maple, cherry, ash, yellow/white birch,
Marketable (white pine, spruce, and fur)

DBH Diameter & Breast Height

Tree width at 41/2 ft. above ground
# of logs the tree can expect to yield when harvested.

Forestry Terminology

Biodiversity The variety of plants and animals and their interrelationships within naturally occurring ecosystems.

Biophysical Region A region with shared characteristics of climate, geology, soils, and natural vegetation.

Conservation The careful protection, planned management, and use of natural resources to prevent their depletion, destruction, or waste.

Ecological Processes The relationships between living organisms, and their environment. Among these processes are natural disturbances such as periodic fire, flooding, or beaver activity; natural stresses such as disease or insects; catastrophic weather related events such as severe storms or lightning strikes, or more subtle ongoing processes such as succession and hydrology.

Ecosystem Management The careful and skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity uses, products, and services over the long-term.

Ecosystem Complete, interacting system of organisms, and their nonliving environment; the home places of all living things, including humans. Ecosystems may be defined at different scales that often involve setting arbitrary boundaries. The term may be used to refer to the community of species and the physical environment around a fallen log, or it can apply to an entire watershed.

Endangered Species A species listed on the state or Federal endangered species list.

Forest Health Condition in which forest ecosystems sustain their complexity, diversity, resiliency, and productivity.

Fragmentation Division of a large forested area into smaller patches separated by areas converted to a different land use.

Habitat A place that provides seasonal or year round food, water, shelter, or other environmental conditions for an organism, community or population of plants or animals.

Forestry Terminology

Healthy Ecosystem An ecosystem in which structure and functions allow the maintenance of the desired condition of biological diversity, biotic integrity, and ecological processes over time.

Landscape In addition to the traditional meaning of the term, in ecology landscape has a specialized meaning: An area composed of interacting and inter-connected ecosystems that are variously repeated because of geology, landform, soils, climate, biota, and human influences throughout the area.

Multiple-use Forestry Any practice of forestry fulfilling two or more objects of management, more particularly in forest utilization; e.g. production of both wood products and deer browse.

Multiple Use Management An onsite management strategy that encourages a complementary mix of several uses, on a parcel of land or water within a larger geographic area.

Native A plant or animal indigenous to a particular locality.

Natural Community Groups or assemblages of species and their associated environments, that are characteristic of a set of environmental conditions present in an area.

Outdoor Recreation Leisure time activities that occur outdoor or utilize an outdoor area or facility.

Old Growth A forest stand in which natural processes and succession have occurred over time undisturbed by human intervention

Forest Stewardship Caring for land and associated resources and passing healthy forests to future generations.

Sustainability The production and use of resources to meet the needs of present generations without compromising the ability of future generations to meet their needs.

Threatened Species A species listed on the state or federal threatened species list.

Traditional Uses Those uses of the forest that have characterized the general area in the recent past and present, including: an integrated mix of timber and forest products harvesting; outdoor recreation; and recreation camps or residences.

Watershed The geographic area within which water drains into a particular river, stream, or body of water. A watershed includes both the land and the body of water into which the land drains.