

An Ecological Approach to Forest Stewardship

Session 1: The Ecology and History of Northeast Forests



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- Why are forests important?
- It's a scale thing (space and time)
- The parts are all connected
- Succession – Nature does not stand still
- How land use history has shaped today's forests



Julie Hart
Senior Manager of Stewardship and Education
Dutchess Land Conservancy



What is a Land Trust?

A land trust is a **nonprofit** organization that, as all or part of its mission, actively works to **conserve land** by undertaking or assisting in land or **conservation easement acquisition**, or by its **stewardship** of such land or easements.



Stewardship



What Does It Mean To Be A Steward of the Land?



Stewardship

The responsible overseeing and protection of something considered worth caring for and preserving.



“Perhaps the most radical thing we can do is to stay at home, so we can learn the names of the plants and animals around us; so that we can begin to know what tradition we’re part of.” ~ Terry Tempest Williams~



What Does It Mean To Be A Steward of the Land?

- Listening
- Observing
- Learning
- Planning



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Ecosystem Services

or.....

What Does the Land Do For You?



Winds, insects and other animals pollinate crops and disperse seeds

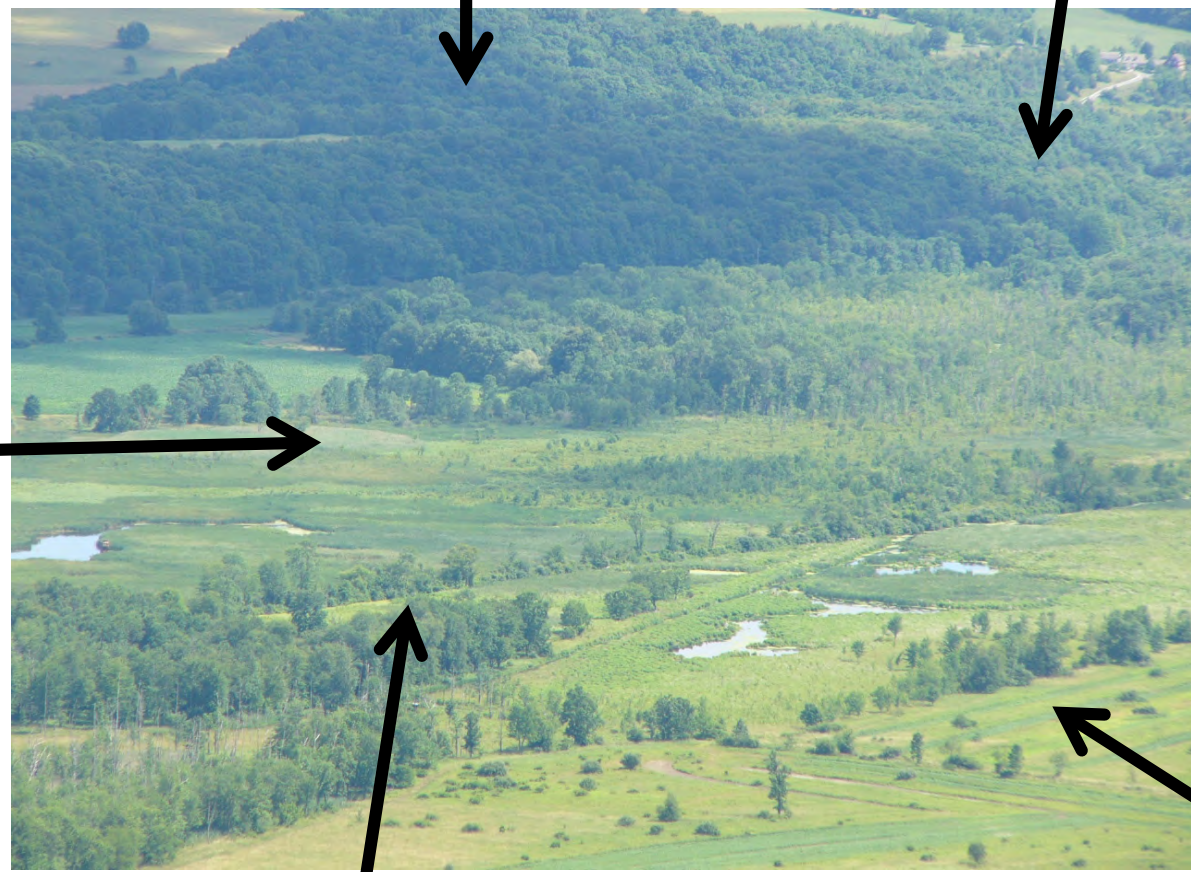
Forests clean the air, and mitigate droughts and floods

Forests and fields generate and preserve soils, and renew their fertility

Farmlands produce our food

Nutrient cycling moves carbon, nitrogen and other nutrients from the soil into living organisms, and then back into the soil

Biodiversity is maintained by intact ecosystems



Wetlands clean the water, and mitigate droughts and floods

Vegetation buffers protect streams from erosion

Microbes detoxify and decompose wastes



Types of Ecosystem Services

Photosynthesis
Nutrient Cycling
Water Cycle
Soil Formation

Clean Air and Water
Flood Mitigation
Carbon Storage
Plant Pollination

Supporting Regulating

Provisioning Cultural

Food and Fresh Water
Timber and Fibers
Genetic Diversity
Medicines

Spiritual Significance
Recreation
Education
Cultural Heritage

Types of Ecosystem Services - Supporting



Photosynthesis
Nutrient Cycling
Water Cycle
Soil Formation

Types of Ecosystem Services - Regulating



Clean Air and Water
Flood Mitigation
Carbon Storage
Plant Pollination



Types of Ecosystem Services - Provisioning



Food and Fresh Water
Timber and Fibers
Genetic Diversity
Medicines

Types of Ecosystem Services - Cultural



Spiritual Significance
Recreation
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Cultural Heritage

Forest Ecosystem Services





Mitigate Droughts and Floods



Support Pollinator Populations





**Provide Shade
and Reduce
Energy Use**



Reduce Erosion of Stream Banks



Generate And Preserve Soils



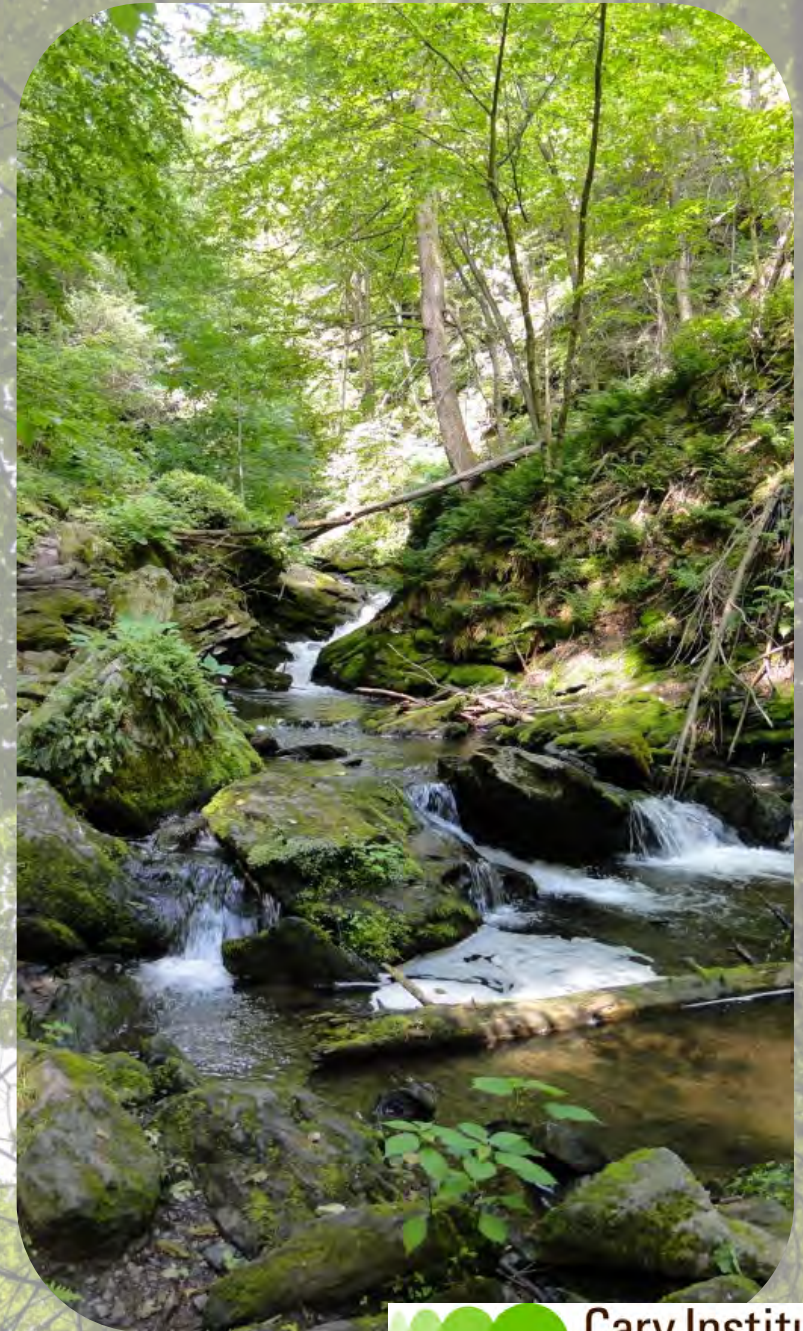


Filter Pollution to Improve Air Quality and Human Health





Filter and Purify Water





Provide a Harvest of Forest Products





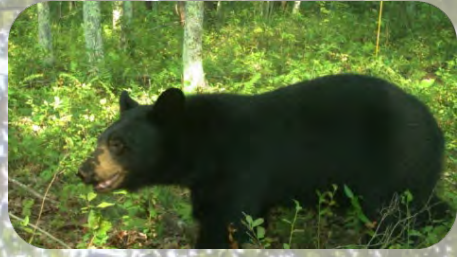
Wildlife Habitat





Outdoor Recreation





Support Biodiversity



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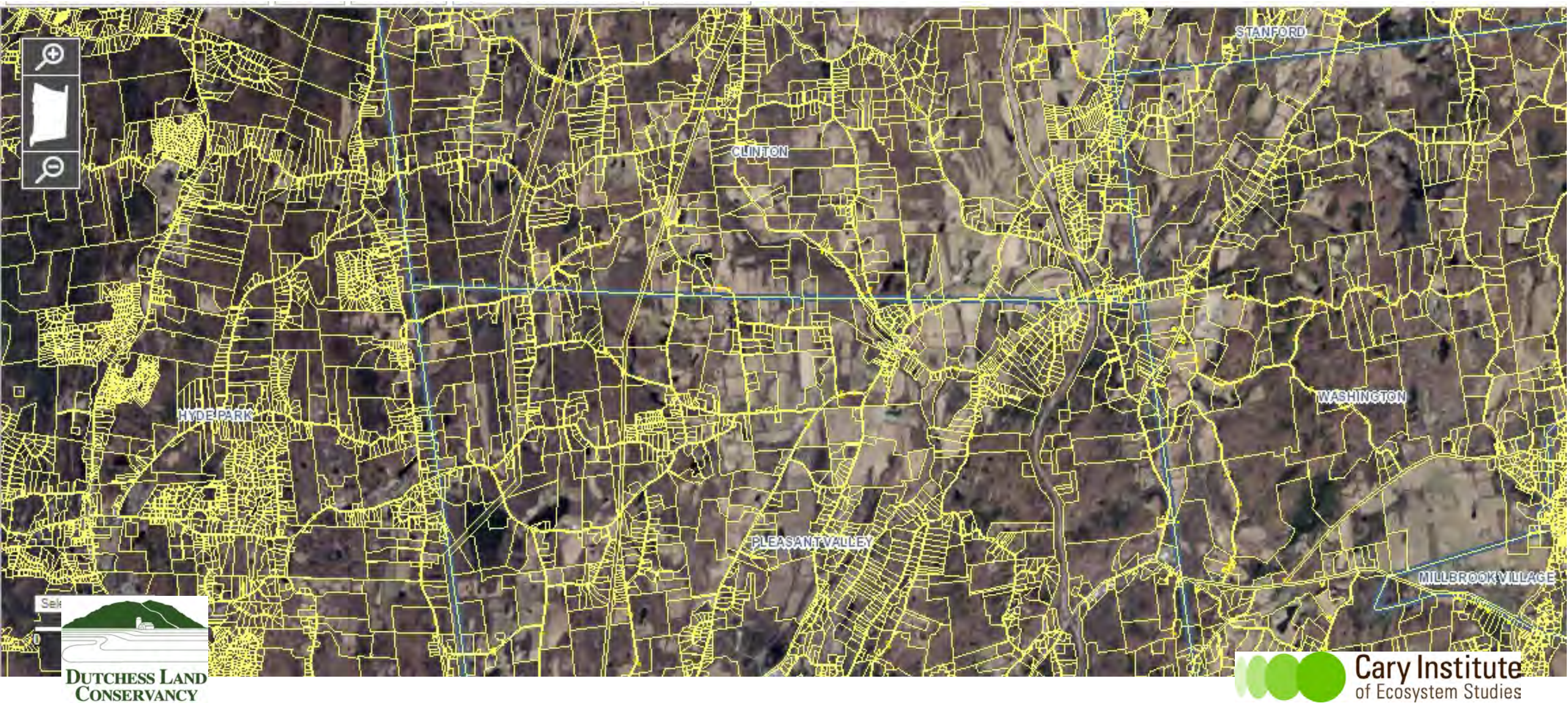
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Let's Talk About Scales



Consider Spatial Scale...



Macro



Meso



Micro

Consider Temporal Scale...



"WHEE," SAID THE SNAIL.

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Average human
life span = 79 years



Average robin's
life span = 2 years



Average butterfly's
life span = 6 weeks

Oak trees can live for
400 years....or more!



When you work for
Mother Nature you get
paid by Father Time



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**The world is maintained by
change - in the elements
and in the things they
compose. ~Marcus Aurelius**



**The world is maintained by
change - in the elements
and in the things they
compose.** ~Marcus Aurelius

...and in the things that decompose.



Coarse Woody Debris: Good for nutrient cycling and biodiversity!



A dead tree is the most alive thing in the forest...



A dead tree is the most alive thing in the forest...



**...so there's no need to
clean up the woods!**









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In fact, tree roots may extend outward two to three times further than the tree's branches do.



And in general, 90% of a tree's roots are in the top 12" of soil, and 95% are in the top 18" of soil.

Consider Temporal Scale...



"WHEE," SAID THE SNAIL.

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12,000 years ago

present day

glacier retreats...



12,000 years ago

present day

soil formation begins...



glacier retreats...



12,000 years ago

present day

grasses and forbs grow...



soil formation begins...



glacier retreats...



forests dominate the Northeast



grasses and forbs grow...



soil formation begins...



glacier retreats...



12,000 years ago

present day



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Columbus reaches Caribbean



12,000 years ago

present day



forests dominate the Northeast



grasses and forbs grow...



soil formation begins...



glacier retreats...



Half Moon sails up Hudson River



Columbus reaches Caribbean



12,000 years ago

present day



forests dominate the Northeast



grasses and forbs grow...



soil formation begins...



glacier retreats...



European colonists begin to clear the extensive forestlands



Half Moon sails up Hudson River



Columbus reaches Caribbean



12,000 years ago

present day



forests dominate the Northeast



grasses and forbs grow...



soil formation begins...



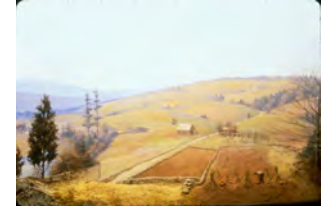
glacier retreats...



12,000 years ago



Most land has been cleared for farming



European colonists begin to clear the extensive forestlands



Half Moon sails up Hudson River



Columbus reaches Caribbean



present day



forests dominate the Northeast



Forests regrow but are fragmented, many invasive species are introduced

grasses and forbs grow...



Most land has been cleared for farming



soil formation begins...



European colonists begin to clear the extensive forestlands



glacier retreats...



Half Moon sails up Hudson River



Columbus reaches Caribbean



12,000 years ago

present day





**“All the world’s a stage,
And all the men and women merely players;
They have their exits and their entrances,
And one man in his time plays many parts.”**

As You Like It, Act II, Scene VII, William Shakespeare



“All the **land’s** a stage,
And all the **species in it** merely players;
They have their exits and their entrances,
And one **life** in its time plays many parts.”

As You Like It, Act II, Scene VII, William Shakespeare