An Ecological Approach to Forest Stewardship

Session 1: The Ecology and History of Northeast Forests
Session 1: The Ecology and History of Northeast Forests

- 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
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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.
Today we have gathered and we see that the cycles of life continue. We have been given the duty to live in balance and harmony with each other and all living things.

From the Haudenosaunee Thanksgiving Address and Greetings to the Natural World
“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.

Farmlands produce our food.

Biodiversity is maintained by intact ecosystems.

Vegetation buffers protect streams from erosion.

Microbes detoxify and decompose wastes.

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

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

Wetlands clean the water, and mitigate droughts and floods.

Dutchess Land Conservancy

Cary Institute of Ecosystem Studies
Types of Ecosystem Services

Photosynthesis
Nutrient Cycling
Water Cycle
Soil Formation

Supporting  Regulating

Provisioning  Cultural

Food and Fresh Water
Timber and Fibers
Genetic Diversity
Medicines

Clean Air and Water
Flood Mitigation
Carbon Storage
Plant Pollination

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
- Education
- 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
Support Biodiversity
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Let’s Talk About Scales
Consider Spatial Scale...
Macro
Meso
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!
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

- glacier retreats...

- soil formation begins...

present day
12,000 years ago present day

- Glacier retreats...
- Soil formation begins...
- Grasses and forbs grow...
12,000 years ago:
- Glacier retreats
- Soil formation begins
- Grasses and forbs grow

Present day:
- Forests dominate the Northeast
12,000 years ago: glacier retreats.

Soil formation begins.

Grasses and forbs grow.

Forests dominate the Northeast.

Present day.
12,000 years ago

- Glacier retreats...
- Soil formation begins...
- Grasses and forbs grow...

Present day

- Forests dominate the Northeast
- Columbus reaches Caribbean
12,000 years ago:
- Soil formation begins...
- Grasses and forbs grow...
- Glacier retreats...

Present day:
- Forests dominate the Northeast
12,000 years ago

- Glaciers retreat

- Soil formation begins

- Grasses and forbs grow

- Forests dominate the Northeast

Present day

- Half Moon sails up Hudson River

- Columbus reaches Caribbean

- European colonists begin to clear the extensive forestlands
12,000 years ago present day

- glaciers retreats...
- soil formation begins...
- grasses and forbs grow...

Half Moon sails up Hudson River
Columbus reaches Caribbean

Most land has been cleared for farming
European colonists begin to clear the extensive forestlands

Forests dominate the Northeast

soil formation begins...

12,000 years ago

present day
12,000 years ago present day

- glacier retreats...
- soil formation begins...
- half moon sails up Hudson River
- Columbus reaches Caribbean
- European colonists begin to clear the extensive forestlands
- most land has been cleared for farming
- grasses and forbs grow...
- forests dominate the Northeast
- forests regrow but are fragmented, many invasive species are introduced
“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