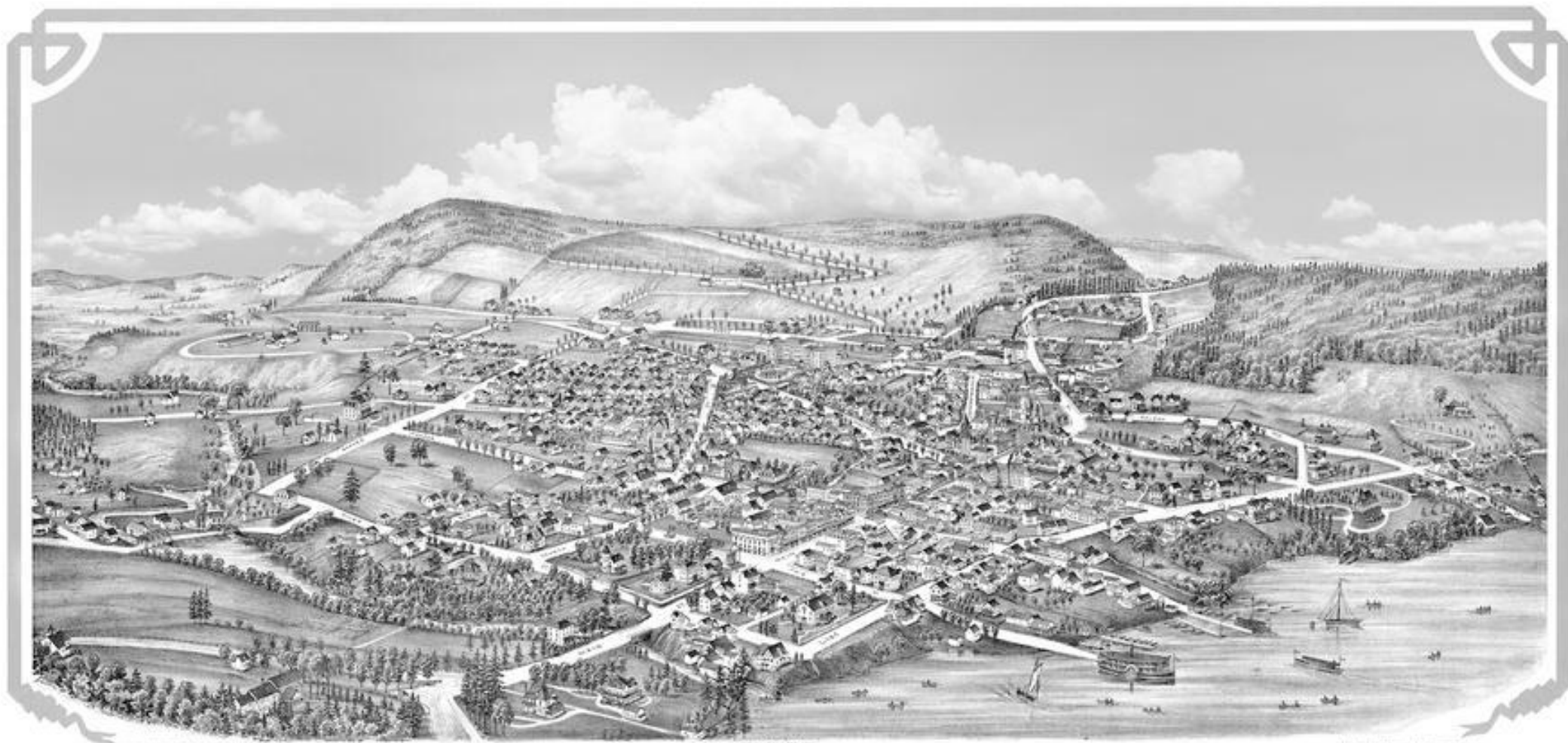


Intro to Tree Care, Agroforestry & Woodland Management

**Garet D. Livermore, Executive Director/Ag Issues Leader
Cornell Cooperative Extension Herkimer County
January 23rd, 2022**

Today's Session

- Process of Working with the Public as a Master Gardener Volunteer
 - Managing Productive Interactions
 - Researching Resource for Consumers
 - Outcomes
- Forested Landscape
 - Handling common tree related inquiries
 - MGV role in encouraging good forest management practices
 - Value of forested landscape in carbon sequestration
 - Examples of productive uses of forest properties



ENGRAVED BY LEITCH, TAYLOR & CO.

COPYRIGHT 1870 BY LEITCH, TAYLOR & CO.

FOR SALE BY LEITCH, TAYLOR & CO., 15 N. 3RD ST. N. Y. C.

- 1 COOPER HOUSE, G. B. Coopers, Prop.
- 2 Hotel Cooper, J. S. Smith, Prop.
- 3 Bedford House, Geo. A. Vanhook, Prop.
- 4 Telegraph Office
- 5 The National Bank of Cooperstown
- 6 Red National Bank, of
- 7 C. J. Adams, President, James, Matthews & Pitzer, Managers
- 8 D. F. Knicker, & Sons, Dry Goods, Carpets, Groceries, etc.
- 9 Schickel & Co., Flour, Feed, Boots, &c.
- 10 H. M. Baker & Co., Hardware, Irons & Tools, &c.
- 11 G. J. W. Reynolds, Bookbinder & Stationer, also sells agent for Bishop's Tracts of Cooperstown.

- 12 Drury Brothers, Dry Goods & Carpets
- 13 "The Orange Bookbinders"
- 14 "The Printer's Journal"
- 15 "The Orange Farmer"
- 16 W. S. Richards, Music, Typewriter, Print, &c.
- 17 Springer & Smith, Merchant Tailors, Clothing and Shoe Makers
- 18 Henry Stone, B. B. Coates, Mill
- 19 Central Library and Reading Room, Stone, Elmwood
- 20 Franklin's Institution, Stationery and Card-making
- 21 C. M. Latham, Cooperstown State Laundry, and Cooper's Clothing Works
- 22 Wm. Spring, Stone Commission

COOPERSTOWN, N. Y.

- 23 Smith, Baker & Brown, Coal, Fire and Feed
- 24 Thomas Mills
- 25 Tanning Mill and Lumber Yard
- 26 Dr. J. G. Pease, Physician and Dealer in Patent Medicines & Perfumery
- 27 F. C. Puffer, Livery & Boarding Stable
- 28 Messrs. Terry, Phillips, Clark, & E. Walker, Prop.
- 29 G. B. Colton, Iron, Lumber & Livery
- 30 J. P. Cooper, Station, Boat Landing & Livery
- 31 Charles Church, Episcopal
- 32 Church of the Messiah, Episcopalian
- 33 Presbyterian Church

- 34 Methodist Church
- 35 First Baptist "
- 36 St. Mary's " Roman Catholic
- 37 Union Free School
- 38 Cooper House of the City Society
- 39 S. M. U. A. Building
- 40 Synagogue
- 41 Farmers' Building (Oliver Hall)
- 42 Cooper Union House
- 43 Building erected to mark the site of Cooper Mill, the home of James Paulding Cooper
- 44 "Orange" or "Orange Bank"



Trees as Culture



Trees as Culture



Trees and Home

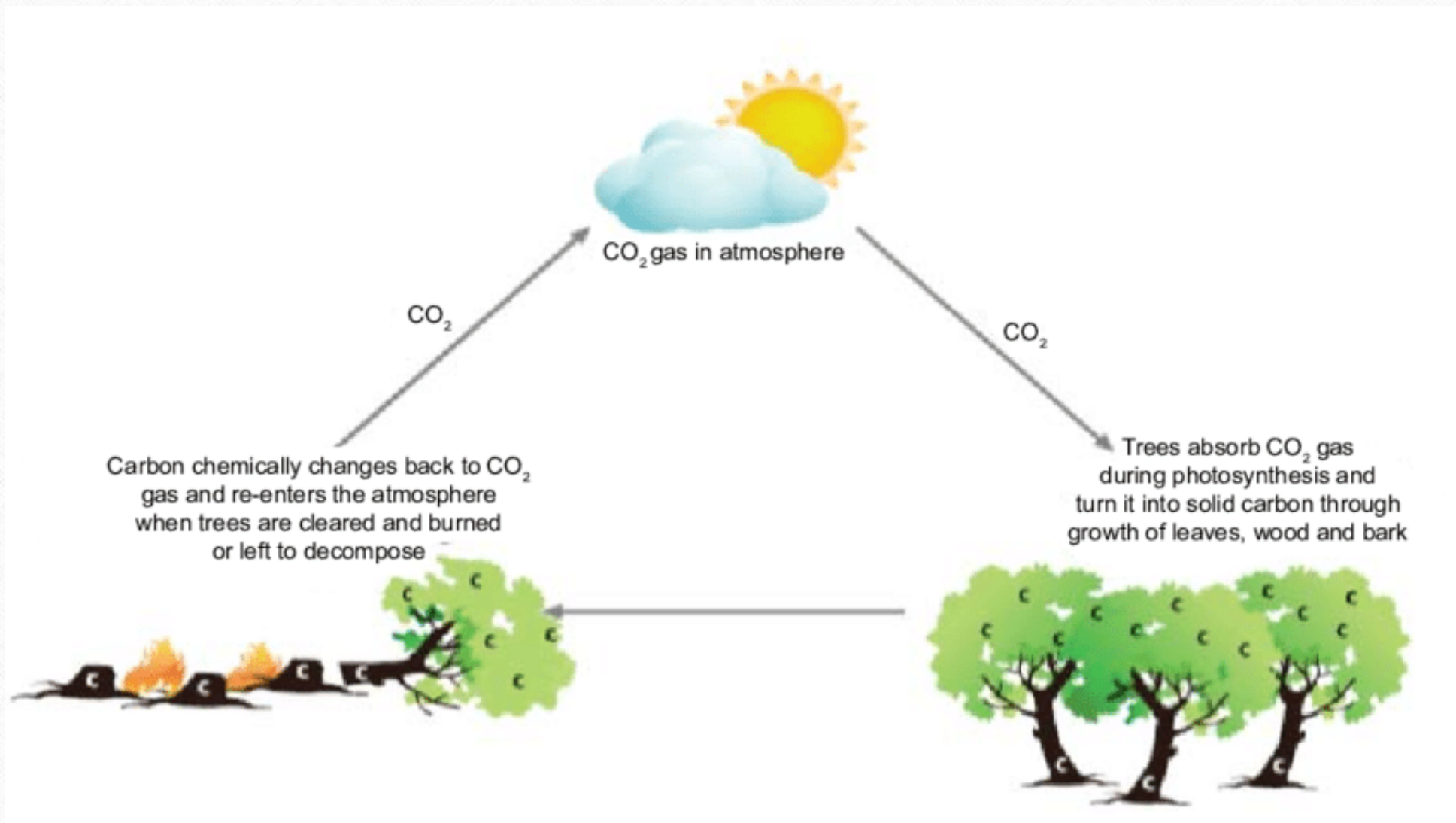


NYS Forest Facts

- New York is 63% woodlands, an increase of 2% since 1993 and more than 25% since 1950.
- Private landowners control 89% of the timberland. Families own 10.8 million acres of woodland (predominately timberland) which is half of the state woodlands and approximately 68% of the timberland.
- The average family woodland parcel size for all owners is 13.7 acres (10.8 million acres and 788,000 owners). The average parcel size for families with 10 or more acres is approximately 46 acres.

Forests and the Carbon Cycle

- Forests remove carbon dioxide from the atmosphere and store carbon in biomass and soil.
- In forests managed for wood supply, part of the carbon (mainly in tree stems and major branches) is extracted from the forest during harvest. If the wood is used for materials, the carbon is stored in wood products and only released at the end of their life (which may include one or more phases of recycling).
- In addition to carbon storage in forest ecosystems and in wood products, using wood can avoid or reduce fossil greenhouse gas emissions by replacing (substituting) products or fuels that emit more greenhouse gases during their production, use and disposal (e.g. steel, concrete).



The Natural
Boom & Bust
Cycle of

Forest Carbon

Carbon uptake
& storage (growth)

Carbon uptake &
storage (re-growth)

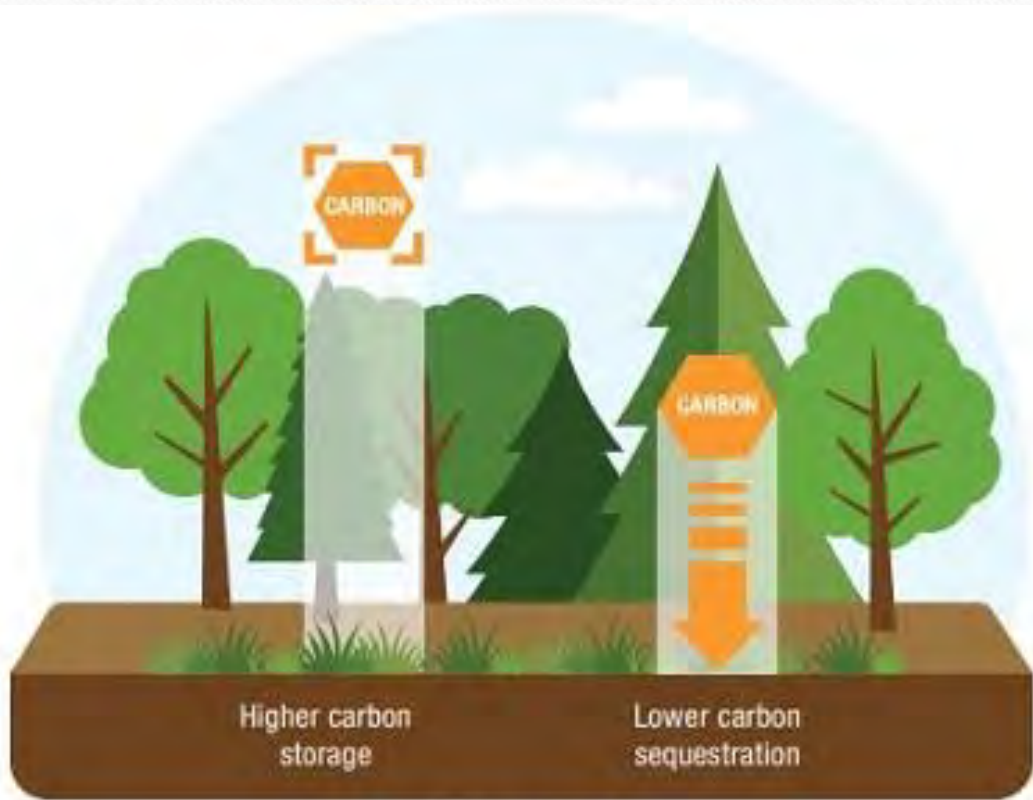
CARBON

Carbon release
(fire)

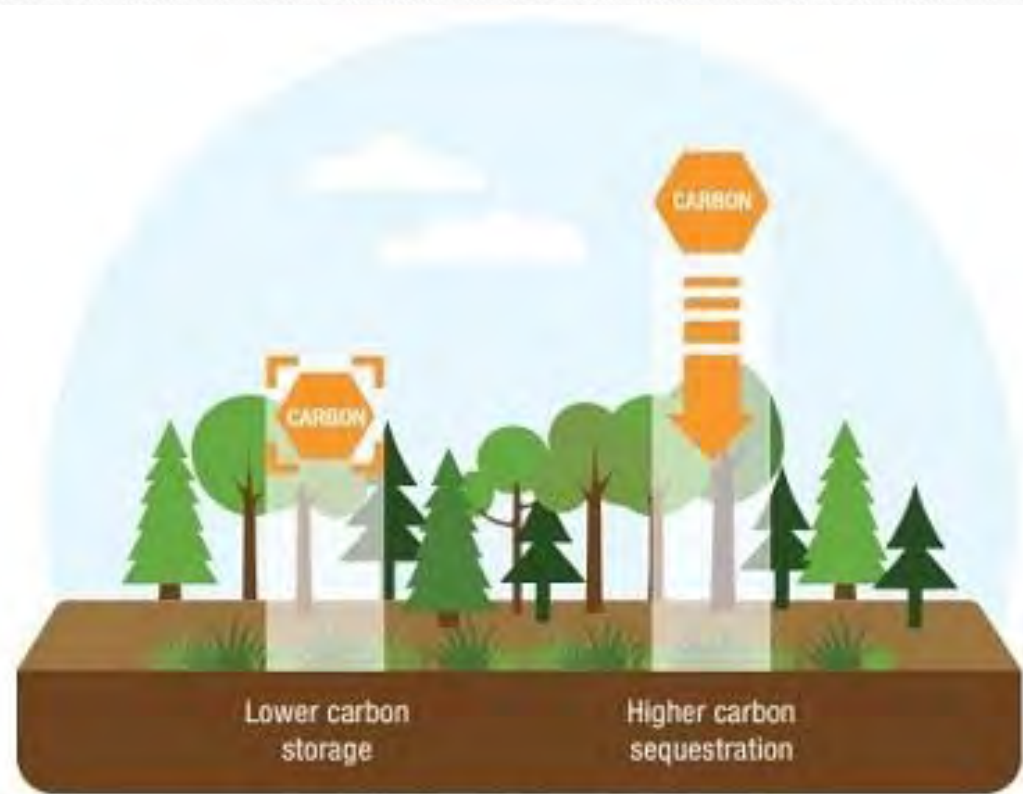
Carbon release
(decomposition) & storage
in dead trees

Below-ground carbon storage
(in roots & soil) is about 50% of forest carbon



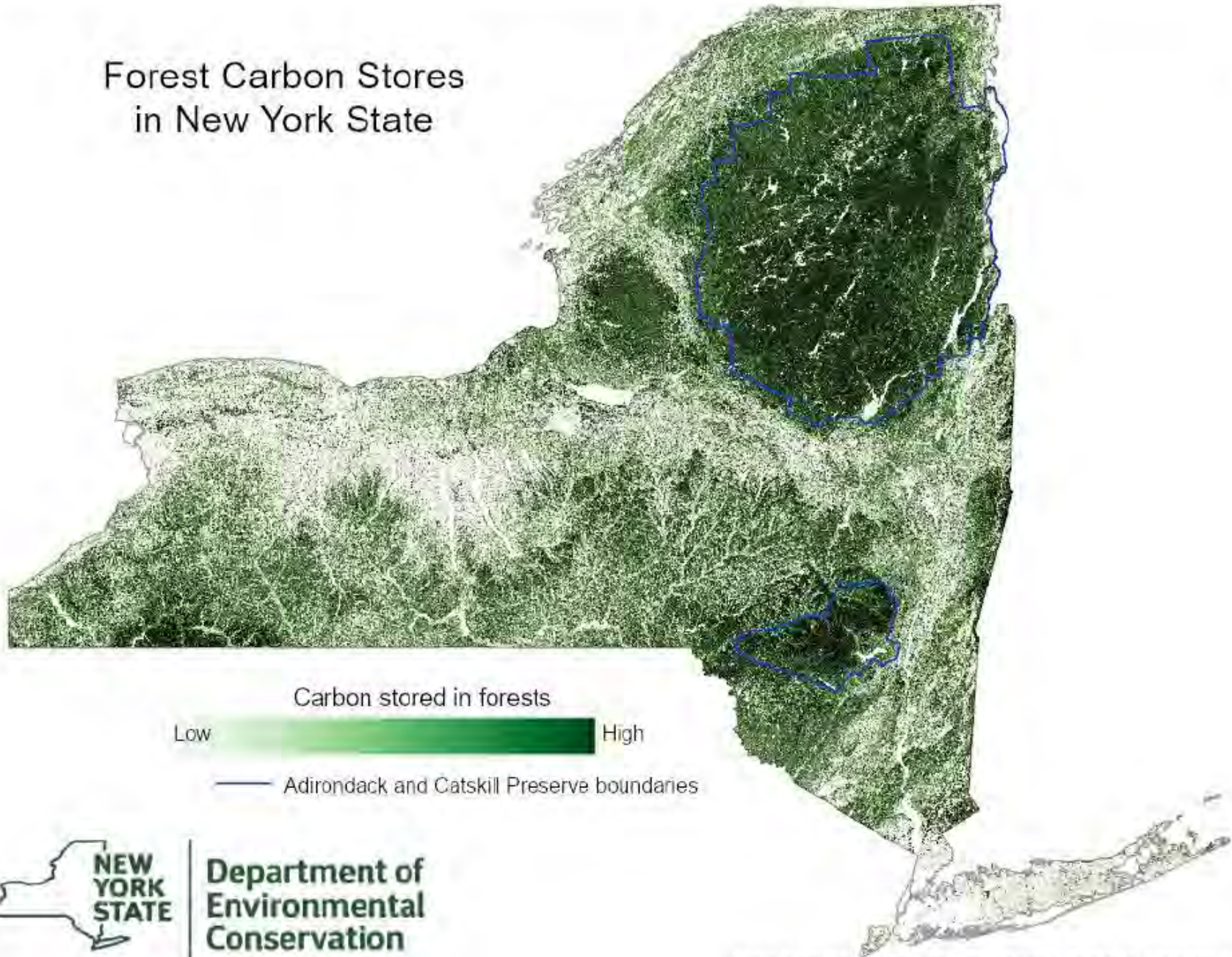


Mature forest




Young forest

Forest Carbon Stores in New York State



Carbon stored in forests

Low  High

— Adirondack and Catskill Preserve boundaries



**Department of
Environmental
Conservation**

Data from the US Forest Inventory and Analysis, October 2021

Managing Inquiries from the Public:

Four

Homeowner Inquiries



- Phone Calls
- Emails
- Public Events
- Walk-ins
- While at the Supermarket

Nature of Most Tree Problems

- Insects
- Fungal Infections
- Cultural Mistakes
- Bacteria/Viral Infections

Plant Disease Diagnostic Field Guide



What parts are infected?



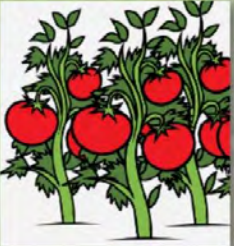
Describe the symptoms.



How many plants are infected?



Which growth stages are infected?



Record the plant variety used.



Record history of chemical inputs



Describe the distribution of the diseases.



Look for visible signs of insects, fungi or other pests.



Check soil type and record weather conditions.

MGV Resources

- Sources of Appropriate Advice:

- CCE Staff, local or state
- Cornell Web-Based
- CCE Web-Based
- Other Universities
- Research Based Organizational

- Sources of Inappropriate Advice:

- Commercial Sources
- Non-Research Based Personal Sources
- Any advice advocating off-label use for pests or weed control
- Unvetted internet resources (Youtube, etc.)

Case Studies: Five Examples

Homeowner Call #1: Invasion of the Spongy (Gypsy) Moth Caterpillars



Spongy Moths



Spongy Moths



Resources Consulted

- <https://cals.cornell.edu/new-york-state-integrated-pest-management/outreach-education/whats-bugging-you/spongy-moth>

MGV Spongy Moth Responses

- Review the life cycle of the Spongy Moth, outbreaks every 8-15 years
- During an outbreak the amount of caterpillars, caterpillar waste (frass) and damage to trees is disturbing
- Managing outbreak can be done by banding trees early in lifecycle, heavy spraying of insecticide or waiting the outbreak out
- Most trees recover from an attack within the growing season
- Area should be monitored for egg cases to anticipate a recurring outbreak

Homeowner Call #2: The Denuded Campgrounds



Rhizosphaera needle cast



Rhizosphaera needle cast

- Consulted with staff at neighboring CCE offices and HORT-L
- There are several related fungal diseases that have similar symptoms
- Management options include:
 - Increasing air flow between trees by thinning
 - Removal of dead and diseased material off-site
 - Spraying by licensed arborist (multiple sprays, precisely timed)

Homeowner #3: The Case of the Declining Maple Trees



Declining Maples



Declining Maples





Declining Maples Management Options

- Wait out the Decline for dryer weather pattern
- Remove dead and dying material, plant trees tolerant of “wet feet”
- Install better drainage around the property

Homeowner Call #4: Crown Gall?



Crown Gall or something else?



What is this?



Phomopsis Gall Treatment Options

- Phomopsis is a fungal infection of several species of hardwood trees including oak, hickories and maples
- Galls are unsightly and can impede growth of tree, but generally do not kill the tree
- No known treatment other than removal and disposal of plant materials

Farmer Call #1: Infected Apple Orchard



Apple Orchard

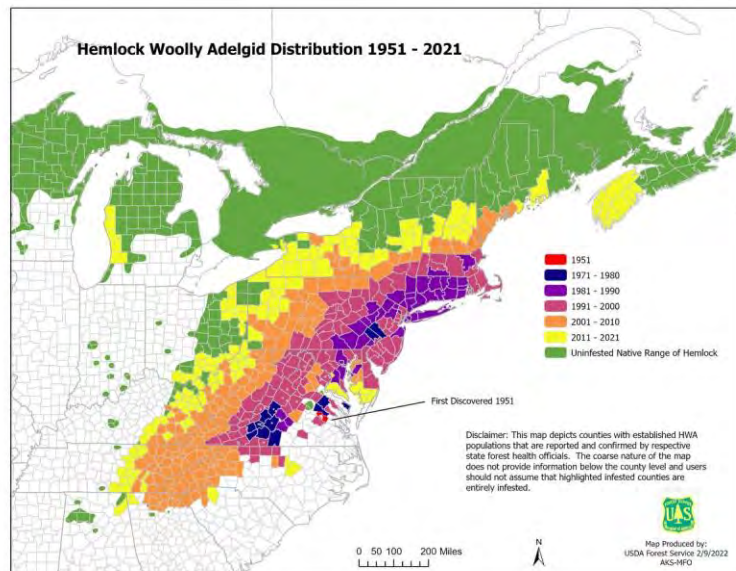


Apple Orchard Disease Management

- Because this is part of an operating farm, consulted with Eastern NY Horticultural Team
- Diagnosis: Fire Blight, a devastating bacterial infection of apple trees
- Treatment: Removal of infected plant material practicing stringent infection control procedures and burning or burying the branches
- Monitoring for further outbreaks and replanting resistant stocks

Invasive Species and Tree Health

Hemlock Woolly Adelgid



Hemlock Woolly Adelgid



Hemlock Woolly Adelgid

- An aphid-like insect introduced to the U.S. in the 1920s from Japan
- HMA is spreading rapidly from the Southern Appalachian Mountains to as far north as the Southern Adirondacks
- HMA is unlike other insects in that it is dormant in the Summer and active in the Winter
- Eastern Hemlocks comprise between 10-20% of the forest in the Adirondack and Catskill parks and are important for erosion control, wildlife habitat and food.

Control of Hemlock Woolly Adelgid

- Researchers are working to identify natural predators of the HMA, with some limited success
- Controlling HMA in the wild forest environment is difficult using conventional methods
- Landscape scale (individual and small numbers of trees) can be treated by arborists with horticultural oil and some systemic insecticides

Emerald Ash Borer



Emerald Ash Borer



Emerald Ash Borer



Emerald Ash Borer



- The Emerald Ash Borer is devastating to the native Ash trees
- The EAB larvae burrow throughout the cambium bark layer cutting off the tree's nutrients
- It is predicted that the current EAB infestation will kill all native Ash trees on the Eastern seaboard within 15 years

What Can Be Done about EAB?



- Track infestation and report outbreaks to the NYS DEC at foresthealth@dec.ny.gov
- Most movement of EAB is from transporting infected firewood and nursery stock. Keep local!
- Help property owners develop a post-Ash tree plan for their properties

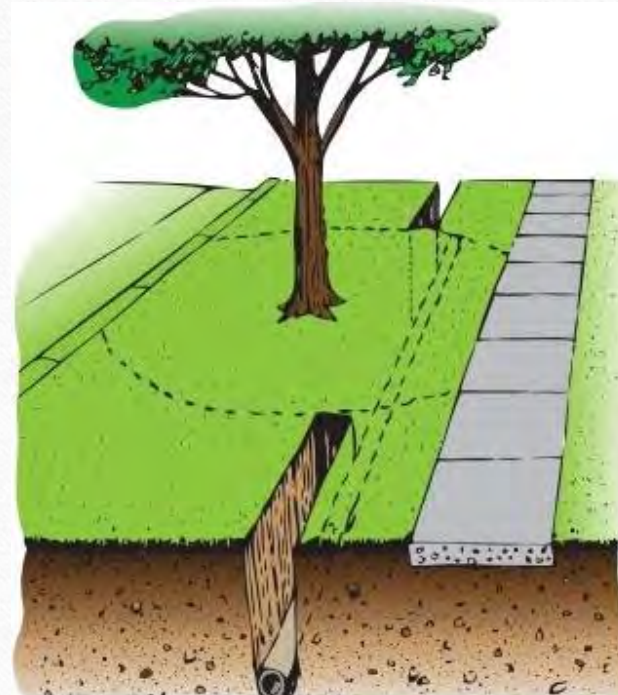
Beech Bark Disease



Beech Bark Disease



Cultural Injuries



Salt Spray on Landscape



Is there hope for trees?



So you bought a farm and it
includes a forest?

Forestry Advice for New Rural Landowners



Understand the value of your forest



- Aesthetic
- Financial
 - Short term
 - Long term
- Micro-Environmental
- Macro-Environmental
- Recreational

Understand the threats to your forest



- Casual Logging
- Timber Theft
- Invasive Species
- Unmanaged Growth
- Browse pressure of deer
- Trespassers

Understand the State of the Forest



State of the Forest



State of the Forest



State of the Forest



Who Can Help the Landowner?

- NYS DEC Forester
- Cornell Master Forest Owner
- NY Forest Owners Association
- Professional Consulting Forester
- County Soil & Water Staff



Who is Who in the Forest



- Foresters:
 - DEC
 - Consulting
- Arborist
- Logger
- Guy with a Chainsaw

Understand the Opportunities for your Forest

- NYS Tax Relief (NY 480a law)
- Federal Tax Deductions
- Conservation Easements
- Working with NYS DEC Forester
- Developing a Management Plan



Agroforestry

Mushroom Production



Silviopasture



Maple Syrup



Resources

- Cornell Forest Connect <https://blogs.cornell.edu/cceforestconnect/>
- NY Forest Owners Assoc.: <https://www.nyfoa.org/>
- NYS Integrated Pest Management: <https://cals.cornell.edu/new-york-state-integrated-pest-management>
- NYS DEC Private Forest Management: <https://www.dec.ny.gov/lands/4972.html>