



Increasing Oak Resiliency in Southern New England

A Virtual Landowner Town Hall Event

Use this document to follow along with presenters during the Landowner Town Hall presentation recording. Throughout the document, you will find useful links to resources that will help further your understanding of options to make oak more resilient in your forest.



Connecticut


- [Connecticut Department of Energy & Environmental Protection \(CT DEEP\)](#)
- [Connecticut Forest & Park Association \(CFPA\)](#)
- [The Connecticut Agricultural Experiment Station \(CAES\)](#)
- [University of Connecticut Cooperative Extension Service \(UConn\)](#)


Massachusetts

- [Massachusetts Department of Conservation and Recreation](#)
 - [Bureau of Forest Fire Control and Forestry \(MA Forestry\)](#)
 - [Division of Water Supply Protection \(Quabbin\)](#)
- [MassConn Sustainable Forest Partnership \(MassConn\)](#)

Rhode Island

- [Providence Water Supply Board \(Providence Water\)](#)
- [Rhode Island Department of Environmental Management \(RI DEM\)](#)
 - [Division of Forest Environment](#)
 - [Division of Fish and Wildlife](#)
- [Rhode Island Woodland Partnership \(RIWP\)](#)
- [Sweet Birch Consulting, LLC](#)



Today's "MENU"	
	WATCH <ul style="list-style-type: none"> •Healthy vs. Stressed Oak Trees •Storm Damage and other disturbances •Deer Pellet Counts
	TALK <ul style="list-style-type: none"> •Talking to a Forester •Talking with family about your land's future •Ask your forester about climate adaptations •Explore Funding opportunities with NRCS
	ACT <ul style="list-style-type: none"> •Have a Plan? •Wildlife-Oriented Actions •Forest-Oriented Actions •Climate-Oriented Actions



WATCH

- Healthy vs. Stressed Oak Trees
- Storm Damage and other disturbances
- Deer Pellet Counts

Take a picture of an oak tree on your property. Healthy and stressed trees.

(**Doug Hutcheson**, [Mass DCR](#))

Has anything changed on your land? storm damage and other disturbance.

(**Andrew Rawcliffe**, [Mass DCR](#))

Deer Pellet counts

(**Jeff Ward**, [CAES](#))



What does a healthy Oak forest look like?

Overstory



Understory



(*Doug Hutcheson*, [Mass DCR](#))

Overstory photo credit – Doug Hutcheson

Understory photo credit – Andrew Rawcliffe

Regeneration or "advance regeneration" = seedlings and saplings in the understory, some of which may grow into future canopy trees



What does an unhealthy Oak forest look like?

Overstory



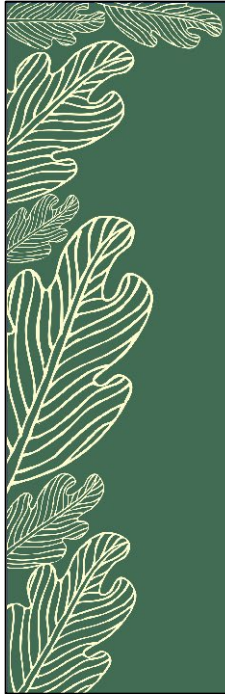
Understory



(*Doug Hutcheson*, [Mass DCR](#))

Overstory photo credit – Andrew Rawcliffe

Understory photo credit – UNH Extension



Sources of Oak damage/stress

Wind



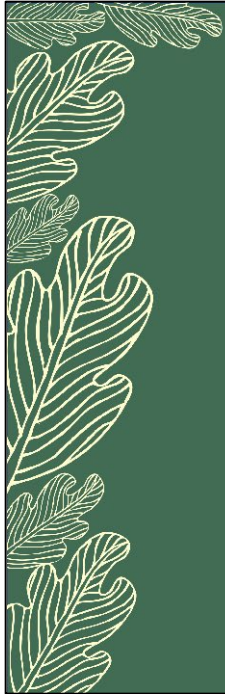
Snow/Ice



(**Andrew Rawcliffe**, [Mass DCR](#))

Wind photo credit – Andrew Rawcliffe

Snow/Ice photo credit – Dave Roback



Sources of Oak damage/stress

Insect outbreak Initial



Insect damage Secondary

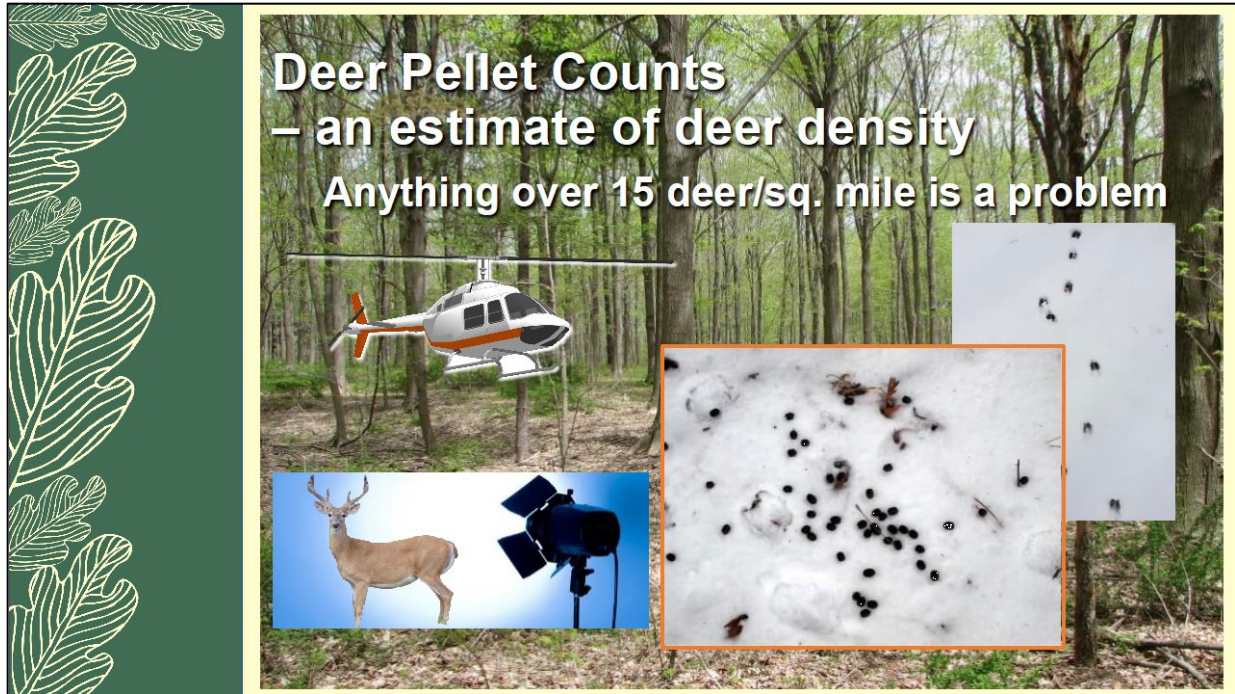


LEFT: DEAD & DYING BRANCHES IN UPPER CROWN OF A WHITE OAK ARE AN EARLY SYMPTOM; CENTER: D-SHAPED EMERGENCE HOLES; RIGHT: LARVAE GALLERIES CAUSE DAMAGE.

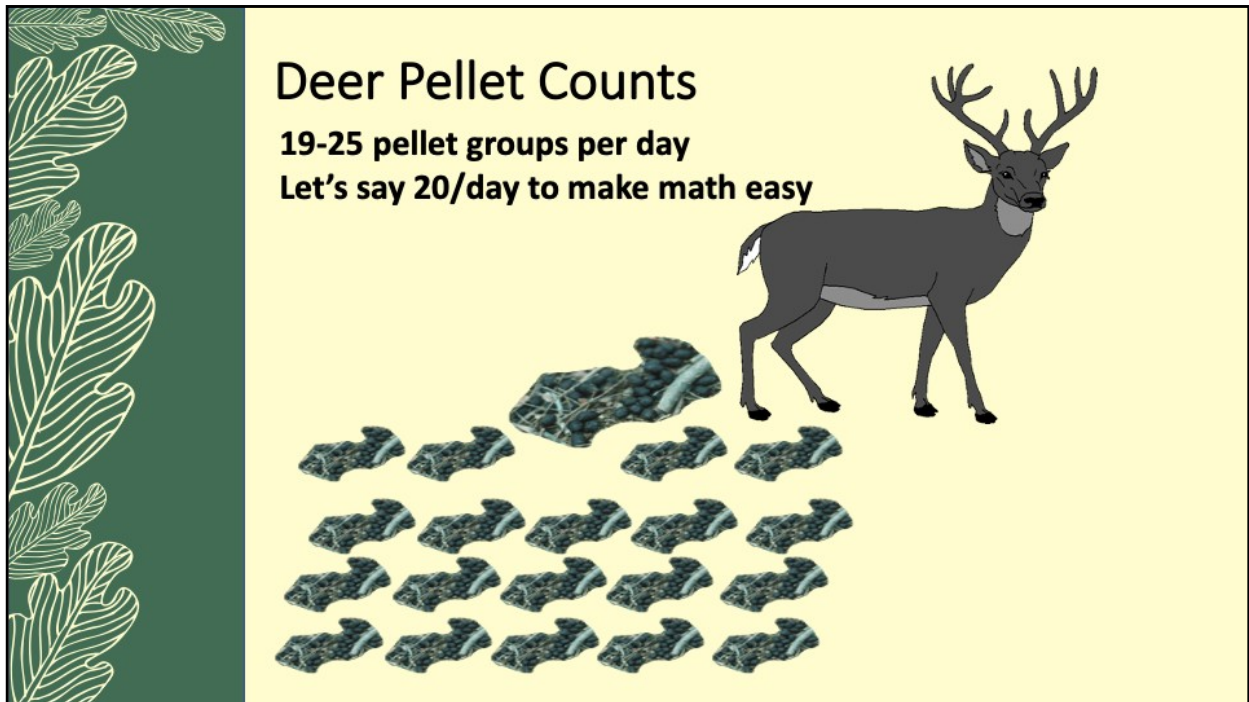
(**Andrew Rawcliffe**, [Mass DCR](#))

Moths photo credit – UMass Ag Extension

Chestnut Borer – daveyx.com



(Jeff Ward, [CAES](#))



(Jeff Ward, [CAES](#))

Leaves make a new layer covering everything
– let's say leaf fall ends Nov 1

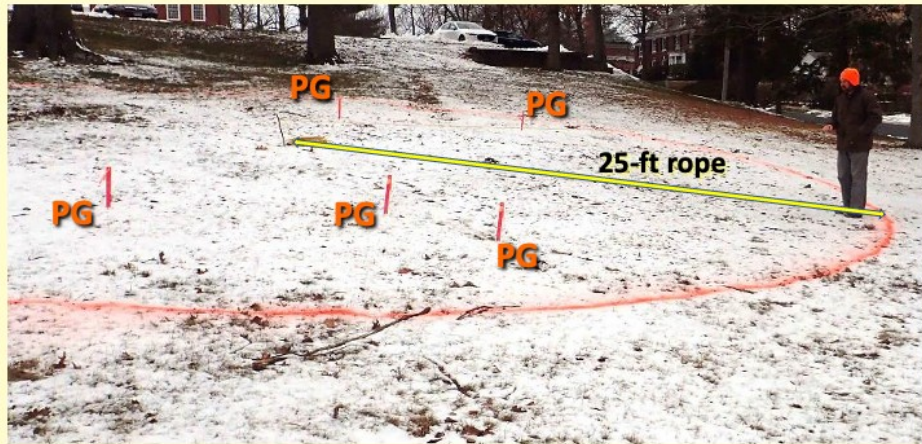


(Jeff Ward, [CAES](#))



(Jeff Ward, [CAES](#))

Attach a rope that gives you a fixed area;
i.e., 23.6 ft for 1/25 acre
-Count all pellet groups within the circle



(Jeff Ward, [CAES](#))



Then do the math (don't worry – simple version on next page)

- November 1 – February 8 (Monday) $30+31+31+8 = 100$ days
- 20 pellet group/deer * 100 days = 2000 pellet groups/deer
- 50 sample points of 1/20 acre = 2.5 acres
- 100 pellet groups / 2.5 acres = 40 pellet groups per acre
- $(40 \text{ pg/acre}) / (2000 \text{ pg/deer}) = 0.02 \text{ deer/acre}$
or 50 acres/deer
- More common metric is deer/square mile
 $640 \text{ acres/sq.mile} * 0.02 \text{ deer/acre} = 12.8 \text{ deer/sq.mile}$

(Jeff Ward, [CAES](#))



Simple Math – close guess

- If your rope is between 23 and 27 feet long
- Then a reasonable approximation is

Deer / square mile

= (640 * # pellet groups) / # points / # days

640 * 49pg / 20pt / 98 days → 16 deer/mile²

Anything over 15 deer/sq. mile is a problem

(Jeff Ward, [CAES](#))



TALK

- Talking to a Forester
- Talking with your family about the future of your land
- Ask your forester about climate adaptations
- Explore Funding opportunities with the USDA Natural Resources Conservation Service (NRCS)

Talk to a forester.

(**Fern Graves**, [RI DEM](#))

Talk with your family about what you want for the future of your land.

(**Fern Graves**, [RI DEM](#))

Talk with your forester about climate adaptations

(**Frank Cervo**, [CT DEEP](#))

Explore NRCS options with an NRCS conservation planner.

(**Christopher Riely**, [Sweet Birch Consulting, LLC](#))



Talking to a Forester

- Choose a forester that you “click” with
- Think about your goals for your forestland
 - Keep an open mind!
- Discuss objectives with your forester
 - Get a plan!
- Stay informed and don’t be afraid to ask questions – remember it’s **your** forest and **your** management plan

(*Fern Graves*, [RI DEM](#))

Service forester = works for a government agency and can offer limited good stewardship advice and recommendations to landowners at no cost to you

Consulting forester = private forester who works directly for the landowner on more involved projects and serves as his/her/their advocate in implementing on-the-ground projects such as a timber harvest or wildlife habitat improvement

Sometimes the terms forest "**management plan**" and "**stewardship plan**" are used interchangeably. However, Massachusetts DCR uses "stewardship plan" to refer to a plan with more details on a property's landscape context and ecological values.



Your Family & the Future of Your Land

- Communication is key
 - Keep your family informed & involved in managing your forest
 - Involve your family in planning for the future

Plan for the future with your family in mind.

Your management plan

- Gives your family a guide

Conservation

- Make sure any permanent conservation needs are taken care of (easements, sale of development rights)

Estate Planning

- Have a plan!

Estate Planning for Forest Landowners: What Will Become of Your Timberland? - Siegel, Haney, and Greene

(*Fern Graves*, [RI DEM](#))

If you're a woman landowner, you'll find great resources on <https://womenowningwoodlands.net/>



Ask Your Forester About Climate Adaptations

- Assumptions:
 - You have an established relationship with a forester
 - Forester is familiar with your land, goals, and objectives
- No right answer
 - Could affect timing of practices
 - Could tweak implementation



(*Frank Cervo*, [CT DEEP](#))

Great website for detailed forest climate adaptation resources:

www.forestadaptation.org

This is a great little publication to dip a toe into management for climate resiliency in a very practical way:

<https://masswoods.org/sites/masswoods.net/files/Forest-Resiliency.pdf>



The **Natural Resources Conservation Service (NRCS)** is the lead federal agency within the USDA that helps private landowners **voluntarily** conserve soil, water, and other natural resources



(*Christopher Riely*, [Sweet Birch Consulting, LLC](#))

NRCS resource, Conservation Practices and Programs Fact Sheet, Rhode Island NRCS:
<https://foreststewardsguild.org/wp-content/uploads/2020/09/Forest-Land-Factsheet-RI-NRCS.pdf>



What does NRCS do?

- NRCS works primarily on private lands
- Provides professional **technical assistance** to help landowners develop and implement conservation plans for their property.
- Provides **financial assistance** (cost share funding) to both protect and restore natural resources
- All NRCS programs are voluntary and non-regulatory

(*Christopher Riely*, [Sweet Birch Consulting, LLC](#))

How NRCS Financial Assistance Programs Work:

<https://foreststewardsguild.org/wp-content/uploads/2020/09/How-NRCS-Financial-Assistance-Programs-Work-MA-NRCS.pdf>



Common NRCS Forestry Practices

- **Forest Management Plan Preparation**
- Forest Stand Improvement (thinning and harvesting)
- Forest Trails & Landings
- Early Successional Habitat Development
- Riparian Forest Buffer
- Tree and Shrub Site Preparation & Planting
- Pruning
- Invasive Species Management
- Wildlife Habitat Improvement
- Woody Residue Treatment
- Firebreak Creation

(*Christopher Riely*, [Sweet Birch Consulting, LLC](#))

5 Steps to Assistance, NRCS

<https://foreststewardsguild.org/wp-content/uploads/2020/09/NRCS-Five-Steps-to-Assistance.pdf>




Start by contacting your state or local field office



(**Christopher Riely**, Sweet Birch Consulting, LLC)

- nrcs.usda.gov



ACT

- Have a Plan
 - Set a goal of having a Management Plan for your forest

Take Action on Your Land

Wildlife-oriented Actions	Forestry-oriented Actions
<ul style="list-style-type: none">• Deer Exlosures and Slash Walls• Forestry for the Birds	<ul style="list-style-type: none">• Rehabilitate "high-graded" stands• Underplant oak, or have a harvest focused on oak regeneration• Show Benefits of Treatment

Take climate-friendly actions on your land

- NIACS workshops and Workbooks

Take action on your land. One action can benefit wildlife, forestry, and climate adaptation.

wildlife-oriented action

- Deer browse, slash wall. (*Jeff Ward*, [CAES](#))
- Forestry for the Birds. (*Marc Tremblay*, [RIFCO](#), [RIWP](#))

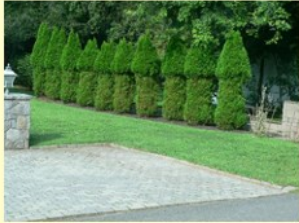
Forestry-oriented action (*Doug Hutcheson*, *Chris Capone*)

- Consider underplanting oak, or having a regeneration harvest. (*Doug*, [Mass DCR](#))
- Rehabilitate high-graded stands. (*Chris*, [Mass DCR](#))

Take climate-friendly actions on your land (*Andrea Urbano*, [CT DEEP](#))

- NIACS workshops, workbooks, strategies

Deer damage – stop the nibbling



(Jeff Ward, [CAES](#))

Deer cages/tubes – stop the nibbling



(Jeff Ward, [CAES](#))



Deer exclosures – stop the nibbling



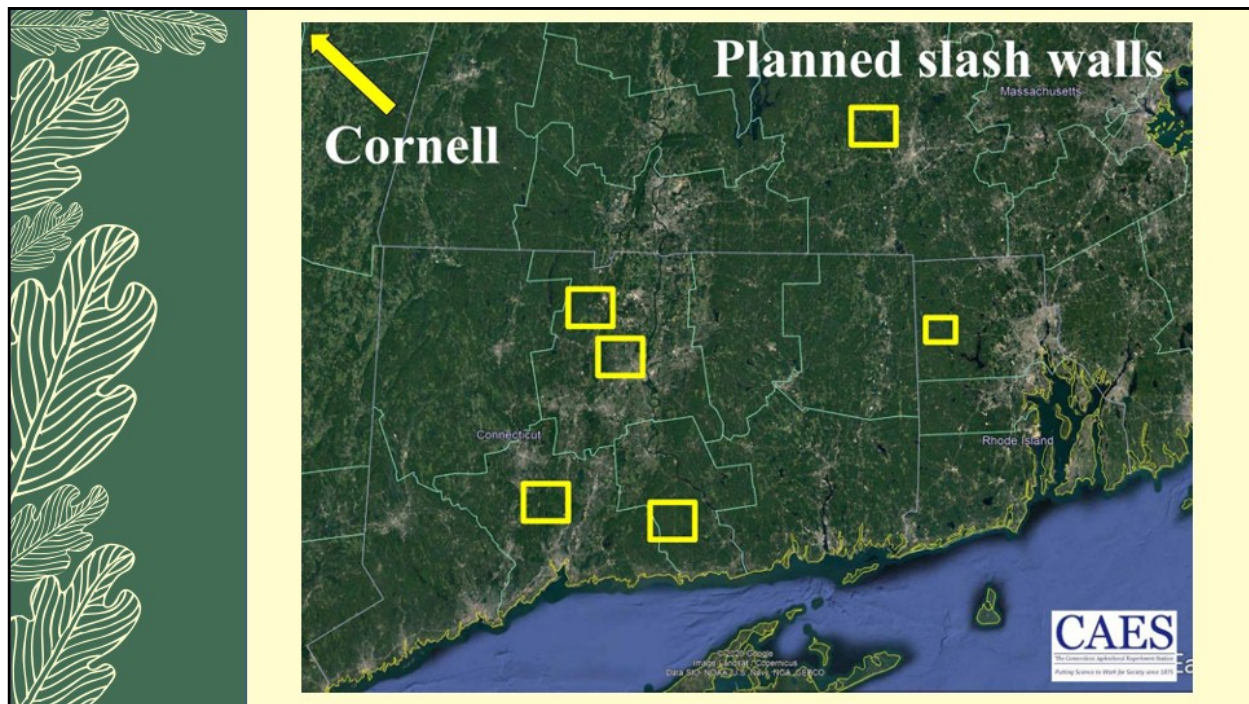
(Jeff Ward, [CAES](#))



(Jeff Ward, [CAES](#))

6-minute video on slash walls in Foster, Rhode Island:

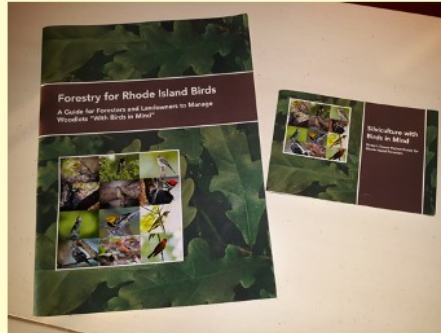
<https://www.youtube.com/watch?v=dOmUJR-SNw0&feature=youtu.be>



(Jeff Ward, [CAES](#))

Forestry for the Birds – RI, MA, & CT

- Provides habitat guidelines and thinning recommendations for providing appropriate habitat for common indicator bird species
- Ground level, shrub level, canopy level habitat sites considered



(*Marc Tremblay*, [RIFCO](#), [RIWP](#))



Forestry for the Birds – RI, MA, & CT

RI project: RI RC&D Council (www.rircd.org)
3 demonstration sites: RIFCO woodlot, Foster, RI; Bryson woodlot, Richmond, RI, & the Norman Bird Sanctuary in Middletown, RI.

Rhodeislandwoods.uri.edu/wildlife/forestry-for-ri-birds

MA project: MA DCR, MWI, Mass Audubon

Masswoodlands.org/programs/foresters-for-the-birds

CT project: Conn. Audubon, The Last Green Valley, USFS

Ct.audubon.org/working-lands/forest-for-birds



RHODE ISLAND
Woodland
PARTNERSHIP



Audubon
CONNECTICUT

(*Marc Tremblay*, RIFCO, RIWP)

- www.rircd.org
- Rhodeislandwoods.uri.edu/wildlife/forestry-for-ri-birds
- Masswoodlands.org/programs/foresters-for-the-birds
- Ct.audubon.org/working-lands/forest-for-birds

Sources of Tree Seedlings and Saplings in Southern New England

- <https://www.cttrees.com/>
- <https://www.conservect.org/>
- <https://www.ritree.org/>
- <https://www.bridennursery.com/nursery>
- <https://grownativemass.org/Great-Resources/nurseries-seed>
- <https://grownativemass.org/Our-Programs/plant-sale>

(*Doug Hutcheson*, [Mass DCR](#))

- <https://www.cttrees.com/>
- <https://www.conservect.org/>
- <https://www.ritree.org/>
- <https://www.bridennursery.com/nursery>
- <https://grownativemass.org/Great-Resources/nurseries-seed>
- <https://grownativemass.org/Our-Programs/plant-sale>

Sources of Seedlings & Saplings N. New England

- <https://vtcommunityforestry.org/resources/tree-care/community-tree-nurseries>
- <https://www.nh.gov/nhnursery/>
- <https://snakeroot.net/MTCA/nurseries/>
- <https://www.arboday.org/>

(*Doug Hutcheson*, [Mass DCR](#))

- <https://vtcommunityforestry.org/resources/tree-care/community-tree-nurseries>
- <https://www.nh.gov/nhnursery/>
- <https://snakeroot.net/MTCA/nurseries/>
- <https://www.arboday.org/>



(Andrea Urbano, [CT DEEP](#))

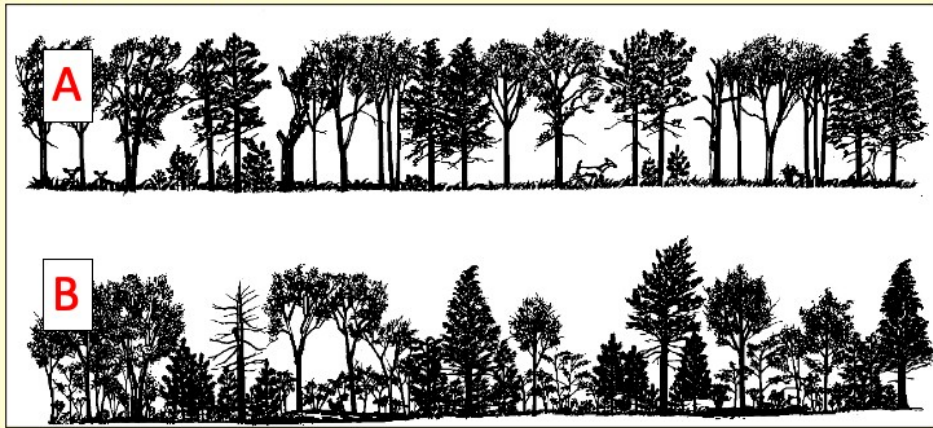
Climate change poses substantial risk to Southern New England forests. But these forests are also part of the solution. Forest management can not only facilitate resilience and adaptability to change, but can also improve our region's ability to mitigate the effects of climate change.

Foresters and landowners alike are fortunate to have available to them the resources of the USFS' Northern Institute of Applied Climate Science, or, NIACS. NIACS has created a climate change response framework, intended to make forest management decision making easier for professionals and landowners interested in managing in the face of change. These resources are intended to promote Adaptive Forests on our landscape.



Adaptive forests

Is prepared for or can respond to climate change without compromising its health, function, and services



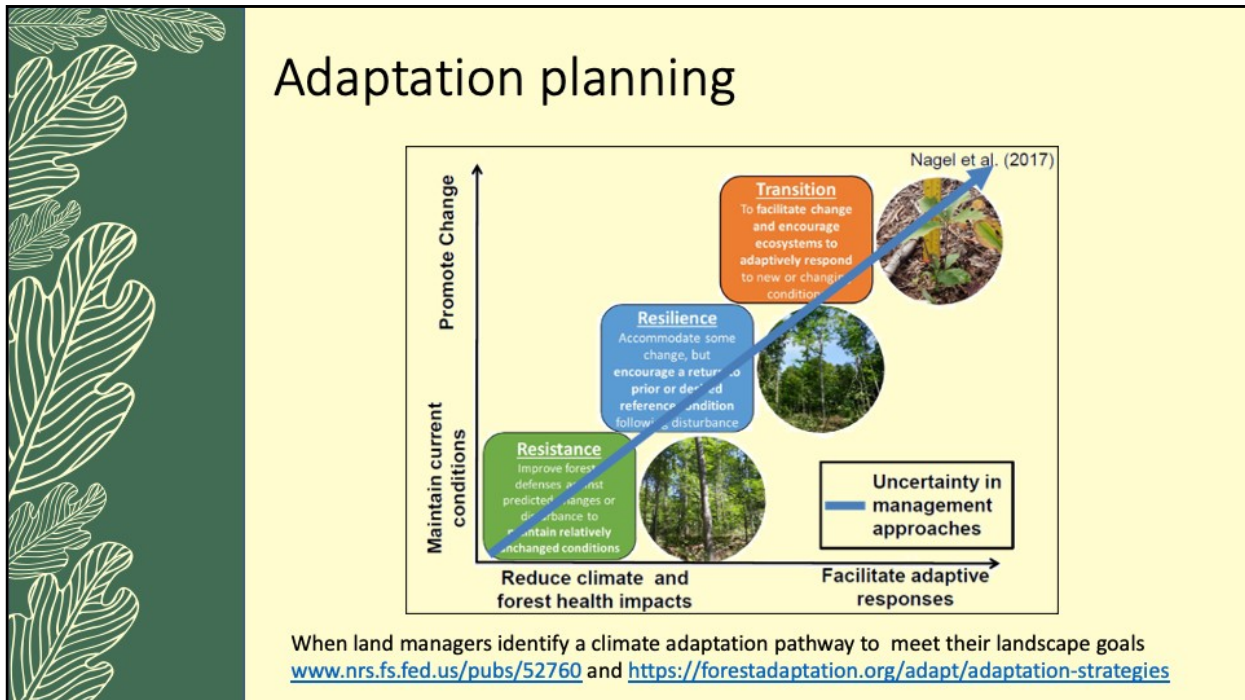
(*Andrea Urbano*, [CT DEEP](#))

But what is an adaptive forest? Well, my definition is..

An example of an adaptive forest is.. A or B? Why?

B because it has a greater diversity of tree species and tree size/structure. This makes the forest better able to respond to change.

Also note – that A facilitates herbivory – notices 3 deer or comfortably browsing, contributing to the lack of understory and regeneration whereas B only has one deer, struggling to navigate through the understory



(**Andrea Urbano**, [CT DEEP](#))

So how can you promote these dynamics in your woodlot?

Well, as Frank mentioned, talk to your forester to learn more about options for your wood lot. Here I describe three broad categories of management options –

Here you see a figure adapted by Tony D’Amato of UVM. It depicts the spectrum of management options for adaptive planning –

1. **Promoting forest resistance**, which improves forest defenses against changes/disturbances. It functions to maintain current conditions of the forest will reducing the impacts of climate change
2. **Promoting forest resilience**, which promotes forest function so that it can return to a prior or a desired reference condition following a disturbance, or
3. **Promoting forest transition**, which facilitates change and encourages ecological adaptation to a new or changing condition.

As you move through this spectrum, from resistance to transition, uncertainty in management approaches increase.

To learn more about these approaches to managing in the face of change, visit the URL sent in the chat box: www.nrs.fs.fed.us/pubs/52760 and <https://forestadaptation.org/adapt/adaptation-strategies>



Strategies

- Control invasive species
- Harvest timber where appropriate
 - Maintain overstory trees during regeneration
 - Retain biological legacies
 - Retain dead wood – standing and downed materials
 - Plant trees if necessary
 - Ensure practitioners meet or exceed BMPs
- Reduce herbivory
- Have a plan for your land - during and post ownership





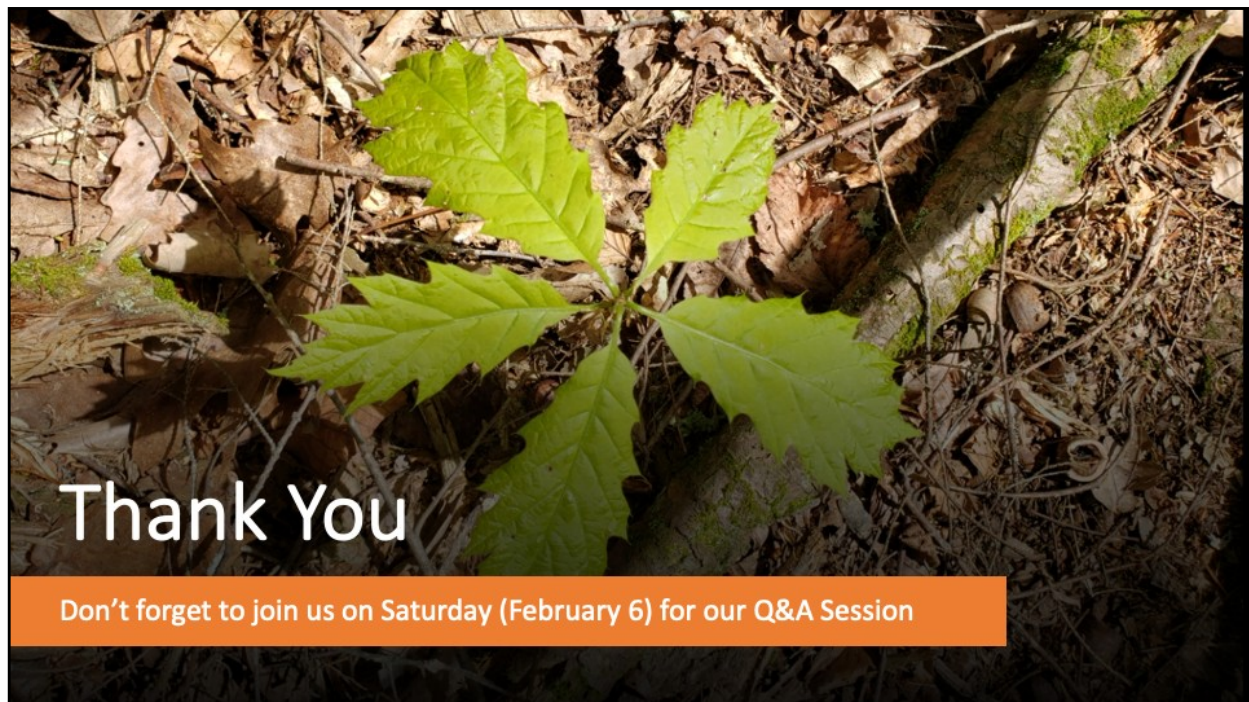
(*Andrea Urbano*, [CT DEEP](#))

Some basic examples of strategies represented in these menu's include.

Forest Adaptation Resources: climate change tools and approaches for land managers, 2nd edition: www.nrs.fs.fed.us/pubs/52760

and

Climate Change Response Framework, Forest Adaptation Strategies:
<https://forestadaptation.org/adapt/adaptation-strategies>



Our Team:

Connecticut

Andrea Urbano

Connecticut Department of Energy and Environmental Protection
andrea.urbano@ct.gov

Frank Cervo

Connecticut Department of Energy and Environmental Protection
frank.cervo@ct.gov

Jeffrey Ward

Connecticut Agricultural Experiment Station
jeffrey.ward@ct.gov

Beth Bernard

Connecticut Forest & Park Association
bbernard@ctwoodlands.org

Massachusetts

Jennifer Fish
Massachusetts Department of Conservation and Recreation
jennifer.fish@mass.gov

Douglas Hutcheson
Massachusetts Department of Conservation and Recreation
douglas.hutcheson@mass.gov

Chris Capone
Massachusetts Department of Conservation and Recreation
chris.capone@mass.gov

Andrew Rawcliffe
Massachusetts Department of Conservation and Recreation
andrew.rawcliffe@mass.gov

Brian Hawthorne
Massachusetts Division of Fisheries and Wildlife
brian.hawthorne@mass.gov

Rhode Island

Christopher Riley
Sweet Birch Consulting, LLC
christopher@sweetbirchconsulting.com

Marc Tremblay
Land Management Services
mstremb@cox.net

Amanda Freitas
Rhode Island Department of Environmental Management
amanda.freitas@dem.ri.gov

Fern Graves
Rhode Island Department of Environmental Management
fern.graves@dem.ri.gov