See a Preview of my Future Woods

It's hard to plan for what you can't see. Follow these instructions to use flagging tape to get a picture of what your woods will look like under future climate predictions.

This activity was adapted from The Climate Change Tree Flagging Activity by the Northern Institute of Applied Climate Sciences.

My Woodlot

#1

Choose an area of your woods to use. We recommend an area that represents the common tree species on your property. In terms of size, you want to pick an area that is large enough to give you an idea of how your woods will change but small enough that you can see the flagging from a single vantage point.

My Woodlot

We set up this demonstration in a roughly 0.25 acre plot at the Clearpool Model Forest. From our vantage point on the trail we can see a dozen or so trees of several common species.

Clearpool Model Forest
Carmel, NY

#2

Identify the trees in your plot. For help with Tree ID in your woods, visit

https://mywoodlot.com/interests/nature-wildlife/identify-my-trees

Using a tree ID guide, we found chestnut oaks, *Quercus montana,* and sweet birches, *Betula lenta* (also known as black birch) in our plot.

#3

Review the "Climate Change Projections for Individual Tree Species – Mid-Atlantic Region" document from NIACS (Northern Institute of Applied Climate Science). You might find it helpful to keep a copy on you while you complete step 4.

CLIMATE CHANGE PROJECTIONS FOR INDIVIDUAL TREE SPECIES
MID-ATLANTIC REGION

This region's forests will be affected by a changing climate and other stressors during this century. A team of managers and researchers created an assessment that describes the vulnerability of forests in the region (*Butler-Leopold et al. 2018*). This report includes information on observed and future climate trends, and also summarizes key vulnerabilities for forested natural communities. The Landscape Change Research Group recently updated the Climate Change Tree Atlas, and this handout summarizes that information. Full Tree Atlas results are available online at *www.fs.fed. us/nrs/atlas/*. Two climate scenarios are presented to "bracket" a range of possible futures. These future climate projections (2070 to 2099) provide information about how individual tree species may respond to a changing climate. Results for "low" and "high" emissions scenarios can be compared on the reverse side of this handout.

The updated Tree Atlas presents additional information helpful to interpret tree species changes:

- Suitable habitat - calculated based on 39 variables that explain where optimum conditions exist for a species, including soils, landforms, and climate variables.

- Adaptability - based on life-history traits that might increase or decrease tolerance of expected changes, such as the ability to withstand different forms of disturbance.

- Capability - a rating of the species' ability to cope or persist with climate change in this region based on suitable habitat change (statistical modeling), adaptability (literature review and expert opinion), and abundance (FIA data). The capability rating is modified by abundance information; ratings are downgraded for rare species and upgraded for abundant species.

- Migration Potential Model - when combined with habitat suitability, an estimate of a species' colonization likelihood for new habitats. This rating can be helpful for assisted migration or focused management (see the table section: "New Habitat with Migration Potential").

Remember that models are just tools, and they're not perfect. Model projections can't account for all factors that influence future species success. If a species is rare or confined to a small area, model results may be less reliable. These factors, and others, could cause a particular species to perform better or worse than a model projects. Human choices will also continue to influence forest distribution, especially for tree species that are projected to increase. Planting programs may assist the movement of future-adapted species, but this will depend on management decisions. Despite these limits, models provide useful information about future expectations. It's perhaps best to think of these projections as indicators of possibility and potential change.

SOURCE: This handout summarizes the full model results for the Mid-Atlantic region, available at www.fs.fed.us/nrs/atlas/combined/resources/summaries. More information on vulnerability and adaptation in the Mid-Atlantic region can be found at www.forestadaptation.org/mid-atlantic. A full description of the models and variables are provided in Iverson et al. 2019 (www.nrs.fs.fed.us/pubs/57857 and www.nrs.fs.fed.us/pubs/59105) and Peters et al. 2019 (www.nrs.fs.fed.us/pubs/58353).

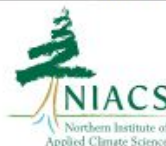### CLIMATE CHANGE CAPABILITY

POOR CAPABILITY	
American holly	Pin oak
Atlantic white-cedar	Pitch pine
Balsam fir	Quaking aspen
Bigtooth aspen	Red pine
Black ash	Red spruce
Black spruce	Shingle oak
Bur oak	Striped maple
Eastern cottonwood	Swamp white oak
Eastern hemlock	Sweet birch
Eastern white pine	Tamarack (native)
Flowering dogwood	Virginia pine
Jack pine	White ash
Northern white-cedar	White spruce
Paper birch	Yellow birch

FAIR CAPABILITY	
American beech	Pond pine
Black cherry	Silver maple
Boxelder	Sweetbay
Overcup oak	

GOOD CAPABILITY	
American basswood	Northern red oak
American elm	Pignut hickory
Bald cypress	Post oak
Bitternut hickory	Red maple
Black locust	Scarlet oak
Black oak	Shagbark hickory
Black walnut	Shortleaf pine
Blackgum	Southern red oak
Blackjack oak	Sugar maple
Chestnut oak	Sweetgum
Chinkapin oak	Sycamore
Eastern redcedar	Water oak
Loblolly pine	White oak
Mockernut hickory	Yellow-poplar

NEW HABITAT WITH MIGRATION POTENTIAL	
Loblolly-bay	Water tupelo
Longleaf pine	Winged elm

NIACS
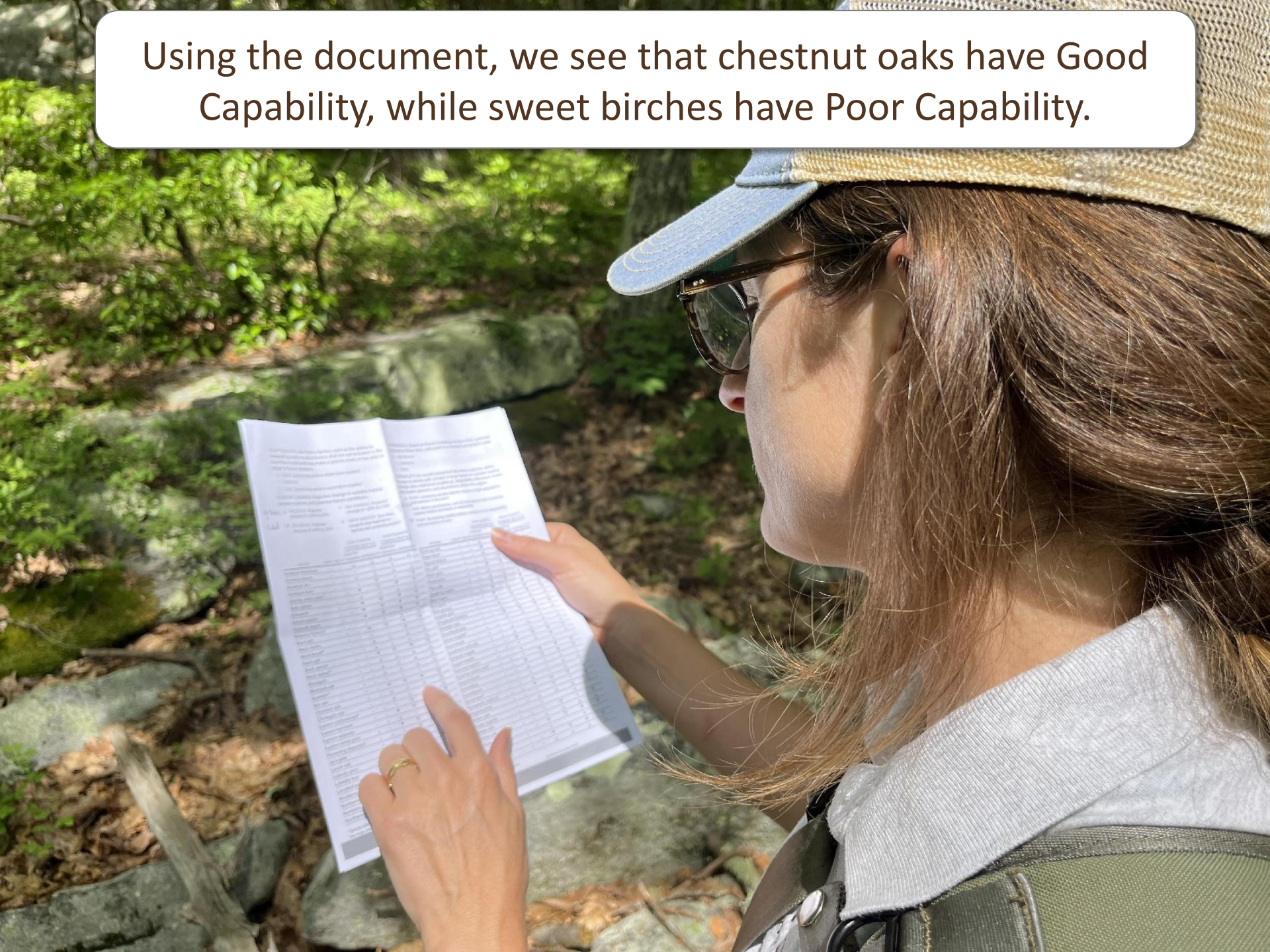Northern Institute of Applied Climate Science

www.forestadaptation.org

Make note of the tree types on your property and what their "climate change capability" is predicted to be. Species are sorted by Poor, Fair, and Good capability.

"Capability" is a rating of a species' ability to cope with climate change in this region.

Using the document, we see that chestnut oaks have Good Capability, while sweet birches have Poor Capability.

#4

Use multiple colors of flagging tape to mark your trees that are predicted to have different climate change capabilities. Each flagging tape color should correspond to a different capability (i.e. poor, fair, good).

My Woodlot

These chestnut oaks are predicted to cope well with climate change ("good" capability) so we marked them with green flagging tape.

This sweet birch is predicted to cope poorly with climate change ("poor" capability) so we marked them with pink flagging tape.

#5

Step back and look at your flagged section of woods. What do you see? Is there more of one color than another?

Consider what the flagging tells you about the future of your woods. What species do you predict you'll see more or less of in the future? How might you want to manage your woods as a result of this activity?

My Woodlot

The pink-flagged sweet birch are predicted to cope poorly with climate change. These smaller trees make up a lot of the mid-story of our forest. As they decline, what might take their place?

The green-flagged chestnut oak are predicted to cope well with climate change. These larger trees are part of the current over-story of our forest and may become more dominant over time.

#6

Now that you have a vision for what your woodlot might look like in the future, it's up to you to decide how to prepare for this future based on your woodlot goals. For example:

- If your goal is biodiversity, consider assisting species that are predicted to do fair or poorly in order to keep them present in your woods.

- If your goal is growing timber, consider cultivating species that are predicted to do well.

- It's also okay to simply observe your woods over time to see if and how these predictions play out on your property.

Before making management decisions, we always recommend discussing your options with a forester. Check out our list of local experts in the MyWoodlot Directory: https://mywoodlot.com/resources/directory
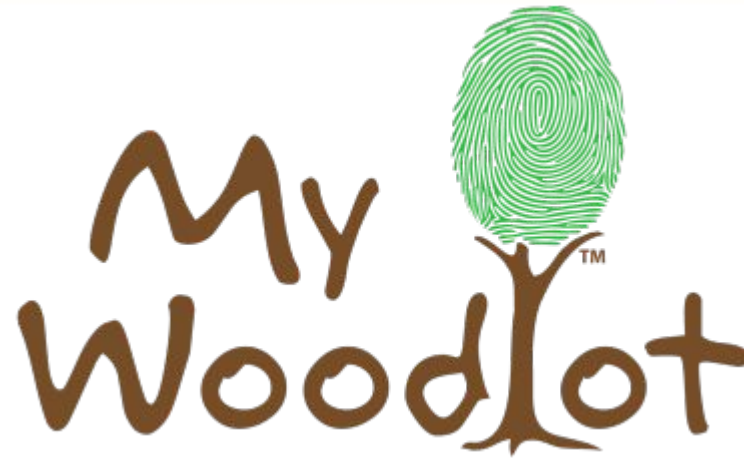
My Woodlot

Is an educational website created to help forest landowners become active stewards of their forestland. MyWoodlot is brought to you by the Watershed Agricultural Council in partnership with

Visit mywoodlot.com and get started today