Climate Change and the Future of Our West Newbury Forests

Trees Matter IV

- ***What's going to happen to our West Newbury forest as climate change progresses?***
- ***Will our trees suffer or thrive?***
- ***Will we have more insects attacking our trees?***
- ***If I want to plant trees now, which ones would be best suited to survive in the future?***

Questions like these are pretty common in light of the changes in climate that are already at our doorstep and that are not going away.

What can we expect in the future?

In 2018, the U.S. Forest Service published a comprehensive study on New England forest ecosystems and projected changes in the future (up to 2100), both in general and also those specifically related to climate change. The major climate-related findings in this study are:

- Warming will generally occur in all seasons but the most dramatic increase will be in warmer winter temperatures.
- Springs will be warmer and will result in a longer growing season.
- Summer and fall precipitation patterns will be more variable and uncertain.
- Extreme precipitation events will be more frequent, with more runoff and less water retention in soils.
- Winters will be shorter and milder with less snow and more rain events.
- Frozen soil in winter will be shorter in duration.

To obtain a copy of this Report, visit the USFS website - click here.

How do these climate changes translate to the future of our West Newbury forests and those in surrounding communities?

The U.S. Forest Service projects that we will: (1) lose habitat for more boreal species like balsam firs, red spruce, and black spruce; (2) gain habitat for some hardwood species like red maple, northern red oak, black cherry, and American basswood; (3) see a decline in many of our common species, especially due less soil moisture and increased drought stress; (4) have altered nutrient availability for the trees in our forests; and (5) experience major adverse impacts on our forests from land use decisions that tend to increase other adverse effects on forests.

Species for the future: (left) Red Maple; (right) Northern Red Oak

What can I do to help my trees and our forests?

- ***Plant suitable species.*** Warm-adapted species are likely better able to take advantage of longer growing seasons and warmer temperatures than our more northern and boreal species. Plant trees now that are better at tolerating warmer, drier conditions. Suitable species for planting include: Red Maple, Northern Red Oak, Chestnut Oak, Common Persimmon, Silver Maple, and Sweetgum.
    - A comprehensive list of species expected to thrive, maintain, or decline under future conditions in southern and coastal New England can be accessed from the Northern Institute for Applied Climate Science website - click here.

- ***Watch for and remedy major infestations of insect pests and invasive plants.*** Major threats to trees and forests include the emerald ash borer (EAB), bittersweet vines, kudzu, and the gypsy moth. Cut down any climbing vines off of tree trunks. For ash trees, watch out for tree crown thinning and suckers sprouting from the lower trunk (which may or may not be due to the EAB) and especially watch for D-shaped holes in the bark and split bark areas with larval "tunnels" showing in the underneath area (cambium). If you see signs of ash decline, contact a local arborist to discuss your options.

Specific signs of the emerald ash borer: (left) larval "tunnels" damage to cambium layer under bark; (right) D-shaped exit holes in bark.

  - For more information on the EAB, click here.
  - A local arborist company has put out a good fact sheet for homeowners, click here.

- ***Water and fertilize new tree plantings for an extended period of time.*** Tree seedling and saplings are more vulnerable than mature trees to changes in temperature and moisture. Be prepared to properly water and fertilize (not too much) new seedlings and saplings. Some difference of expert opinion exists on how much to water a new tree planting. One general rule of thumb is to give each young tree 1.5 gallons per week per inch of tree diameter for the first 5 or so years after planting, depending on rainfall and the size of the tree. Other experts suggest more! Keep in mind that the bigger the tree at transplant, the longer it will take to establish a root system and the more water it might need at each watering.
  - More information is available under the link for Planting and Caring for Trees on our homepage.

- ***Watch for tree decline in spruces and firs.*** Examine frequently any firs and spruces that might present safety hazards for signs of decline, such as premature browning or excessive loss of needles. You might take photos at least 2-3 times per year so that you know if the decline is temporary or consistent.

- ***In forested areas, leave fallen trees and limbs alone.*** Soil organic matter from decayed trees and shrubs is better at holding moisture than bare forest soils or grassy fields. Refrain from clearing forest floors of fallen limbs and trees. Instead, leave them in place to decay naturally. Avoid converting forested areas to grassy areas. Rich forest soils are about 20 times better at retaining rainfall than grassy areas.

- ***Protect and increase forest areas.*** Disturbances to forests (fragmentation from development, tree removal, over-browsing by animals, greater invasive plant and insect infestations, etc.) tend to amplify the impacts from many of the other threats to our forests. You can help by promoting programs designed to protect or increase forest areas and avoid forest fragmentation.

Let's Protect and Enhance Our West Newbury Forests