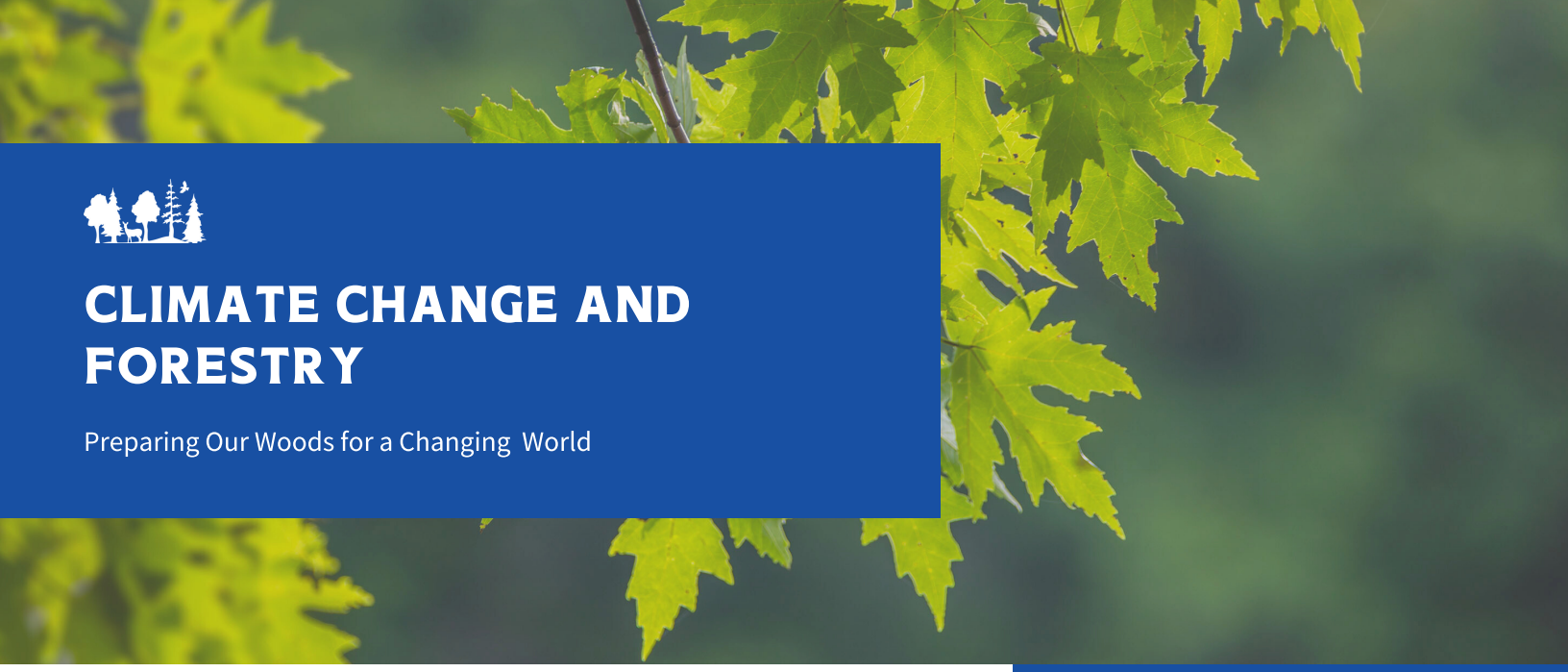


CLIMATE CHANGE AND FORESTRY

Preparing Our Woods for a Changing World

THE ISSUE

Climate change is an ongoing process that is affecting the entire planet – including the St. Croix Watershed. To preserve our wonderful natural resources, it is of the utmost importance to recognize the threat of climate change and take action to prepare for it.

Firstly, it is important to make a distinction between climate and weather. Weather is what is happening in the atmosphere in the short term, while climate is a long-term trend in weather and temperatures.

Therefore, even though the climate is warming, we can still experience cold days. While individual days may be freezing, the average temperature has been warming year after year across the globe. This is climate change. So what is causing this warming trend? In short, it is excess amounts of greenhouse gasses, such as carbon dioxide and methane, being released into the atmosphere through human actions. These gases, just like a greenhouse, have the ability to trap energy in the atmosphere rather than letting it pass back into space. This excess energy then causes the earth to slowly heat up. Even an average increase of just four degrees Fahrenheit will increase major weather events such as heatwaves, droughts, storms, and floods, just to name a few.

How did we get here? Humans have always had impacts on the environment around us, and in this case, our greenhouse gas emissions are creating this daunting problem. Years of burning fossil fuels such as coal, oil, and gas have allowed vast amounts of carbon dioxide into the atmosphere, in addition to emissions from agriculture and other processes. While these practices have indeed improved our quality of life, embracing green energy and more sustainable lifestyles is necessary to reduce the effects of climate change and ensure a high quality of life.

EFFECTS OF CLIMATE CHANGE IN MN/WI

Temperature Increases

- The watershed has already warmed by 2° F over the past century
- Average temperatures are projected to rise by 3 to 4° F by 2040

Precipitation Changes

- Areas are already receiving 4 in. more rainfall than in 1900, and this is increasing
- More total rain is coming from heavy rainfall events
- Resulting increases in erosion and flooding impact ecosystems, communities, and infrastructure

Drought Stress

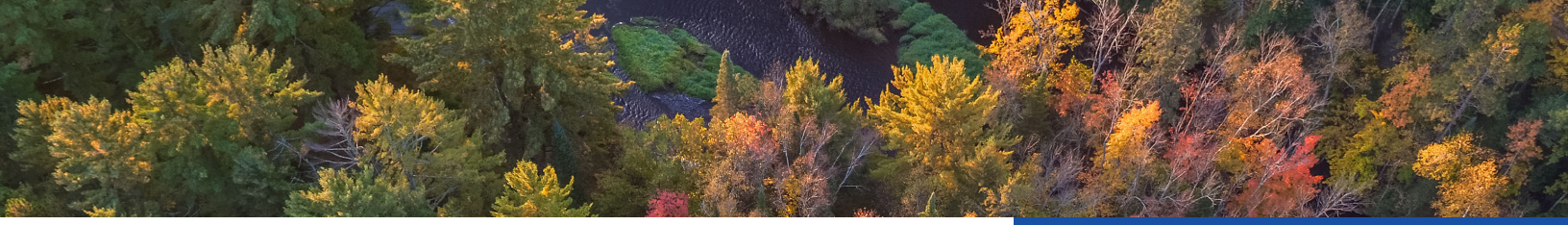
- Warmer winters reduce snowpack and quicken melting
- More water will be lost to runoff during intense rain events rather than being stored in soil
- Even if total rainfall increases, factors may lead to net drier conditions

Wildfire

- Wildfires are expected to become more frequent and intense in coming years, especially in boreal and conifer forests

Invasive Species and Diseases

- Invasive species and disease are expected to have more opportunities to spread to new areas
- Milder winters provide less protection against invasives in northern WI and MN



WHAT CAN WE DO?

Forests hold an essential place in our fight to mitigate the effects of climate change. Individual trees take carbon dioxide out of the air, storing it away as it grows and producing oxygen for us to breathe. Much like trees, soil and fungi also have the ability to store large amounts of carbon in the form of organic matter. These can be powerful tools to help pull carbon dioxide out of the atmosphere, where it can no longer have an effect on the climate.

There are three main approaches to adapting woodlands to a changing climate: resistance, resilience, and transition. Each strategy has strengths and weaknesses, and is useful for accomplishing different goals. Working for resistance in your woods means helping to maintain the ecosystem against changes. Resiliency involves managing your forest so it is tolerant of changes. Transitioning encourages intentional change to better fit a warmer climate. Finding the right strategy for different situations is an important part of forming an impactful response to climate change.

A good place to start managing your backyard for climate resiliency is by looking at "climate-change winners" trees and incorporating them into your woods. Trees that are predicted to do well in this region are:

- American elm
- Basswood
- Black cherry
- Oaks (black, white, bur, pin, and red)
- Black walnut
- Hackberry
- Maples (red, silver, sugar, and boxelder)
- Bigtooth aspen
- Bitternut hickory
- Eastern cottonwood
- Eastern red cedar
- Green ash
- Ironwood
- Shagbark hickory

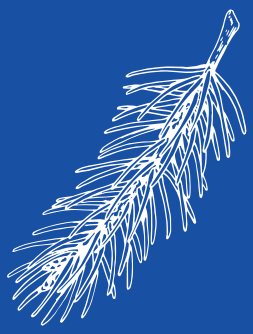
Increasing diversity in your woodlands increases climate resiliency while benefiting wildlife. Resilient forests can provide essential habitat for species stressed by climate change. In addition to increasing diversity, timber harvesting can be a useful tool for climate resiliency. Wood products store carbon and harvesting creates room to plant young trees that can absorb carbon at a faster rate than an older tree.

Find out more about managing for climate resilience by contacting your local forester, Wild Rivers Conservancy, or through the links below.

- forestadaptation.org
- dnr.state.mn.us/treecare/best-native-yard-trees.html
- climatehubs.usda.gov/hubs/northern-forests

NATIVE TREE SPECIES IN OUR WATERSHED WITH POOR ABILITY TO ADAPT TO CLIMATE CHANGE

- American hornbeam (blue beech)
- American mountain-ash
- Balsam poplar
- Black willow
- Mountain maple
- Pin cherry
- Serviceberry
- Black ash
- Black maple
- Black spruce
- Eastern hemlock
- Red pine
- River birch
- Tamarack
- White spruce
- Yellow birch



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CLEAN WATER LAND & LEGACY AMENDMENT