

Effects of Global Climate Change on our Forests

Michelle Grabowski, Regional Extension Educator, has spoken at some of our classes that we have sponsored. Michelle is extremely conservative on the use of chemicals and very concerned on the effect of the climate changes that are taking place.

She recently spoke on the effect of global climate changes on Minnesota's forests. Minnesota, along with the rest of the United States, is warming up. In fact the hottest ten years ever recorded have occurred within the last 15 years. The Environmental Protection Agency (EPA) reports that the growing season in the Great Lakes region has increased by 10% since 1981. This warming trend is greatly influenced by the use of fossil fuels to run cars, heat homes, and generate electricity.

Although many gardeners relish the idea of a longer growing season and a wider variety of Minnesota-hardy plants to choose from, there are many negative effects associated with global climate change. The EPA reports that for the Great Lakes Region, the next century could bring one of the greatest environmental changes since the end of the last ice age.

Warmer temperatures mean that evaporation will increase. Water levels in the Great Lakes, the prairie potholes, wetlands and streams are predicted to drop. This will reduce the habitat for coldwater fish like trout and salmon as well as breeding grounds for waterfowl. Agriculture will become more dependent on irrigation, putting farms in competition with urban and natural areas for limited water resources.

Scientists are not sure exactly what Minnesota's climate will change into, but they agree that the changes will have a strong effect on the native plant community. Plants are adapted to a specific set of climate condition. If those conditions change, the plants may not be able to survive where they once lived.

One of the greatest concerns is for the forests in the Boundary Waters Canoe Area Wilderness. These forests contain tamarack, black spruce, and balsam fir. These trees are adapted to cool, moist weather. Also, the aspen and birch forests currently make up much of the northern half of the state. They would be completely lost or greatly reduced in size. In the place of these forests, the oak, hickory, elm, ash, and cottonwood forests that currently exist in the southern regions of the state would expand northward.

Dr. Lee Frelich of the U of M Center for Hardwood Ecology, warns of other changes that will occur. Trees under stress due to climate changes will be more susceptible to disease and insect pests. This will speed up the decline of existing forests. In addition, European earthworms are predicted to expand northward with global climate change. These worms breakdown the duff layer on the forest floors. This results in drier soils with lower nutrient availability. Reduced plant productivity will increase the risk of wildfires.

Deer populations are expected to increase due to warmer winters and will further reduce the number of plants in the forest understory. All of these factors make it difficult for new forest species to become established and replace tree species that are dying out due to climate change.

To find ways to improve energy efficiency and reduce carbon dioxide emissions in your life, please visit the following web pages:

- The Minnesota Pollution Control Agency web page about global warming www.pca.state.mn.us/hot/globalwarming.html
- The EPA's case study on the Great Lakes Region www.epa.gov/climatechange/wyacd/downloads/CS_glum.pdf (PDF)
- Climatecrisis.org

VOICE MAIL: You can leave a question for a volunteer Master Gardener at our NEW PHONE # 651-213-8904 any time of day or night. You can also get your question answered on the web at: www.extension.umn.edu/askmg

The Chisago County Extension Office is now sharing office space with Veterans Administration in the Senior Center building at 38794 6th Avenue in North Branch.

Plans are underway for our Gardening Bonanza—Town and Country Expo—to be held in North Branch on March 8. Information on our spring events, including the plant sale will be mailed about Jan. 15 and posted on our website www.extension.umn.edu/county/chisago/mg.

Submitted by Jerry Vitalis
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