March 2023 Creation Care Green Tips

**Figuring Out Climate Change: Global Warming is Making the Planet (including Minnesota) Hotter, Wetter *and* Drier**

1.  Worries about war in Ukraine, inflation, and other concerns have pushed climate concerns aside, but the U.N.'s World Meteorological Organization (WMO) reports that the **three main heat-trapping greenhouse gases (CO2, methane and nitrous oxide)** have hit record high levels this past year.  CO2 concentrations, mainly from burning of fossil fuels and cement production, have increased by nearly **50% since preindustrial times (around the year 1750)**, and are the main driver of climate change and extreme weather that will affect polar ice loss, ocean warming and sea level rise.  **Methane** (from livestock, rice farming, use of fossil fuels, biomass burning and landfills) and **nitrous oxide** (from biomass burning, industrial processes and fertilizer use) are rising faster than ever, with the U.S., Europe, and China responsible for the bulk of emissions that threaten the goal of keeping rising temperatures under **1.5 degrees C (2.7 degrees F)**.  The state of Minnesota produced climate plans in 2008 and 2015, both of which fell far short of their goals, but is now one of  30 states to release a new climate plan reflecting the intensified urgency around the climate crisis.  Ellen Anderson, climate program director at the Minnesota Center for Environmental Advocacy (MCEA), says that "meeting these goals could put Minnesota on the map for a clean energy economy, which means thousands of jobs and a healthier place to live."

2.  As global temperatures rise, the atmosphere becomes capable of holding increasing amounts of water vapor that results in mega-rain events lasting days and even weeks.  The stalled weather patterns create corresponding droughts in other parts of the world, as documented by the European Union's Copernicus Climate Change Service in reporting that 2022 was the fifth hottest year ever recorded on the planet.  As humans continue to pump massive amounts of greenhouse gases into the atmosphere, extreme heat waves in Europe, Asia and the U.S. resulted in Europe's hottest summer on record, Pakistan's catastrophic flooding from extreme rainfall, and Antarctic Sea ice reaching its lowest minimum amount in 44 years of satellite records.  The records show that the **last eight years have been the hottest recorded in human history,** and that the world needs to cut planet-warming emissions roughly in half by the end of the decade to keep the Earth from warming beyond 1.5 degrees C.  The U.S. National Climate Assessment, published every four years, reports that "more intense extreme events and long-term climate changes make it harder to maintain safe homes and healthy families, reliable public services, a sustainable economy, thriving ecosystems and strong communities."  In Minnesota, one of the fastest warming states in the nation, a Climate Action Framework will outline key areas for climate investments to accelerate the expansion of natural climate solutions for a brighter future for our state.  You can encourage policymakers to support this effort.

3.  The U.S. has warmed **68% faster** than Earth as a whole, according to the NASA Goddard Institute for Space Studies, reflecting a global pattern in which land areas in higher latitudes are warming faster as humans heat up the planet by burning fossil fuels like oil, gas and coal for energy.  Minnesota meteorologist Paul Douglas reports that nearly half of Minnesota was in drought in 2022, while 53% of the U.S. was in drought as the world is on course to warm by nearly 2.8 degrees C (5 degrees F) by 2100.  "You may not care," he writes, "but odds are your kids do."  Douglas offers hope in the fact that renewable energy provided almost 1/4 of U.S. electrical generation during 2022, according to the U.S. Energy Information Administration.  Minnesota's **Climate Action Framework** seeks to cut 50% of greenhouse gases by 2030, **leading to net-zero by 2050** in order to cap temperature rise at 1.5 degrees C (2.7 degrees F).  Businesses that have signed onto this plan include Ecolab, General Mills, Aveda, engineering firm LHB, Ben & Jerry's, Clif Bar, Eileen Fisher, Ikea USA and Trane Technologies.  Unprecedented help comes from the federal Inflation Reduction Plan (IRA) and the Bipartisan Infrastructure Law, which is expected to provide an estimated **$6.8 billion** for roads, bridges, public transit and water, plus $68 million over five years to build high-speed public charging stations for electric vehicles.

4. A law established by Congress in 1990 established the National Climate Assessment, which publishes a report every four years, with input from a wide range of scientists across federal agencies as well as outside experts.  The last report, issued in 2018, found that unchecked global warming could cause significant damage to the U.S. economy.  Throughout the U.S., Americans are feeling the effects of climate change in their everyday lives, realizing the effects of the deadly and destructive extreme weather that causes heat waves, heavy rainfall, droughts and wildfires.  To avoid the worst impacts of climate change, Minnesota needs to **reduce emissions by at least 50% by 2030.**The passage of the federal Inflation Reduction Act (IRA), which recognizes that Minnesota's forests, pastures and croplands can **sequester roughly 20% of our carbon emissions,** dedicates $20 billion to climate-smart agriculture to help producers reduce greenhouse gas emissions on their farms, adding to the $500,000 for soil health assistance granted by the state legislature.  The IRA also invests $1 billion for managing wildfire risk in our forests as well as helping our cities, towns and tribal communities plant more trees.  Recent analysis found that the IRA will support 10,000 jobs in Minnesota every year for the next decade in diversified industries such as in the power, buildings and transportation sectors.  These jobs and associated economic activity will generate roughly **$130 million in local, state and federal government revenue annually for 10 years.**In addition, as estimated **$6.6 billion** of investments in agriculture and forestry, renewable energy, clean transportation and more will be provided to Minnesota.

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GLOBAL WARMING & HUMAN DISEASES

The global pandemic of Covid-19 was probably the result of human interaction with, or consumption of wild animals. Certain other viral diseases also have spread to humans due to contact with wild animals, such as Ebola, and this route of exposure is increasing as humans invade new areas. Now, global warming has been proven to be a direct cause of diseases spreading to human populations that were never before exposed. Disease organisms, such as viruses, bacteria and fungi, and disease vectors, such as plants, animals and insects are migrating to new habitats, becoming invasive species, and exposing native species and humans to new diseases. Tropical diseases, such as malaria, West Nile Virus and Valley Fever are spreading north as temperatures rise. Temperate diseases, such as Lyme Disease, also are moving to new geographic regions. The deer tick was rare in southern Canada until temperatures became warm enough to allow this disease vector to migrate into that region, greatly increasing the incidence of Lyme Disease. From 2004-2018, U.S. cases of mosquito, tick and flea bites more than doubled and nine new germs spread by these vectors were found in the U.S. New studies are showing that melting glaciers and permafrost are releasing thousands of tons of viruses, bacteria and fungi to ecosystems each year, creating disease risks that are not yet well understood.

Sources: Popular Science, 5/2/22; CDC, 8/2/22; CBC News,1/9/23

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Recent studies showing huge declines in many species across the globe have moved some national and international agencies to formulate plans and treaties to help save natural areas and endangered species. During COP15 (Montreal, Dec. 2022) the first international agreement (non-binding) was passed to recognize the inherent rights of nature and indigenous communities, and to set goals to protect biodiversity. One hundred and ninety six countries signed the agreement which includes 23 biodiversity targets to be met by 2030, with the top goal of protecting 30% of all natural ares by 2030 (30 by 30). A total of $200 billion was pledged for this effort, including $30 billion aid to undeveloped countries. The European Union is the first government agency to propose laws meeting the COP15 goals. If passed, the "Nature Restoration Law" would develop timelines for protecting and repairing degraded rivers, wetlands and forests across the 27 member countries. The U,S. Congress considered a similar law, the "Recovering America's Wildlife Act", but it died for lack of  support. Major opposition to the COP15 goals, the Nature Restoration Law, and the Recovering America's Wildlife Act has come from agricultural sectors (pesticides and fertilizers) and land development sectors.

Sources: Inside Climate News, 1/2/23; Vox, 1/11/23