



Peatlands and Climate Change Mitigation

The problem: Peatlands are at risk of destruction

- Destruction of wetland areas exacerbates climate change in Minnesota by releasing greenhouse gases and reducing carbon storage
- Peatlands contain fertile soils, known as peat, that can be economically valuable when drained, harvested, and converted for agricultural purposes.
- Peatlands make up 3 percent of earth's land surface but store twice as much carbon as the earth's forests combined (New York Times 2022)
- 15 percent of the world's peatlands have already been drained due to land conversion (New York Times, 2022)
- In Minnesota, peatland drainage and mining emit 11 mmt of CO₂ each year (MPCA data, 2018), the biggest source of emissions in the agriculture and land use sector.
- The MPCA estimates about 800,000 acres have been drained for crops or pasture, while recent mapping and analysis from the Nature Conservancy estimates the current total of farmed histosols at closer to ~330-380K ([Star Tribune Feb 2022](#), [Blann, pers. comm.](#))
- Peatlands are categorized as "irrecoverable carbon" because they take so long to generate. Once destroyed, they can not regenerate by 2050, the year by which we need to be globally carbon-neutral ([Conservation International](#))
- There are over 4 billion tons of carbon sequestered in MN peatlands. That amounts to or 27 years worth of MN CO₂-e emissions (DNR [2008](#)).

Background:

- Peatlands are a unique type of rainfed wetland that is saturated with water year-round and typically found in cooler climates. As a result of little to no groundwater entering the area, peatlands and bogs are often nutrient poor and therefore can only be home to specialized or endemic species.
- In other ecosystems, when a plant dies, the carbon locked in the plant body interacts with oxygen, and the carbon is released back into the atmosphere. But in low-oxygen peatlands, dead plants accumulate and become a type of carbon-rich soil called peat.
- Peatlands make up about 10% of Minnesota land (5-6 million acres) ([DNR](#)) Our state has more peatlands than any other state except Alaska.
- Minnesota's peatlands have been forming since the glaciers receded over 5,000 years ago, and in some areas the peaty soil is 10 meters thick.
- When peatlands are drained (most commonly for agricultural land use), the formation of peat stops and peat decomposition accelerates, releasing CO₂ into the air.
- Beyond carbon storage, peatlands also provide critical ecosystem services including water quality protection, water storage, and habitat for endemic species
- Sphagnum moss often accumulates in peatlands and decomposes under cold, wet conditions, which allows for rapid carbon sequestration.
- Other types of wetlands also act as carbon sinks and are necessary for capturing and storing greenhouse gases ([BWSR](#))



Minnesota's Peatlands Deserve Protection

- Wetland protections are tools Minnesotans may utilize to mitigate the harmful impacts of climate change
- Undisturbed wetlands store carbon: Avoiding peatland conversion offers a faster sequestration rate than any other practice by a factor of ten (TNC)
- Peatlands provide resiliency and mitigate impacts from climate change:
- Peatlands are essential wetland ecosystems that protect water quality



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