

Minnesota's peat bogs 'wild card' in global warming

Long overlooked, Minnesota's boggy north is under scrutiny for its vast amounts of stored carbon.

By [BILL McAULIFFE](#), Star Tribune

Last update: January 9, 2008 - 10:32 PM

Flat, scrubby, too wet to walk on but too dry to fish, Minnesota's vast peatlands have long been regarded as good for almost nothing, including sightseeing.

But now, in an age of climate change, the bogs are the target of a security alert.

Experts fear that a warmer climate will speed the decomposition of peatland vegetation, which has been slowly decaying for 4,000 years. Carbon is naturally released as a byproduct of that decomposition, and the addition of an untold amount would cause the climate to warm even faster than it already is.

"Northern peatlands are the wild card in global warming," said Eville Gorham, a retired University of Minnesota Regents' professor of ecology who has studied peatlands around the world.

The Minnesota Climate Change Advisory Group will include peatland protection and restoration measures among the several dozen recommendations for blunting climate change that it will forward to Gov. Tim Pawlenty on Feb. 1. The strategies include raising the water table in peat country, preventing drainage, restoring areas that have been drained and urging that "best management practices" for other lands also apply to peatlands.

Minnesota has about 7 million acres of peatlands, the most of any state in the Lower 48. Even though large expanses of them have been drained for farming, they are still the state's largest intact original ecosystem and perhaps its largest wilderness, said Dave Zumeta, executive director of the Minnesota Forest Resources Council.

Peatlands cover about 14 percent of the state's land area, but they hold 37 percent of its stored carbon, the highest of any land or vegetative form. (Lake sediments are next at 31 percent; forests hold only 3 percent.)

Lots of carbon in storage

As a result, Minnesota likely has more carbon in natural storage than most other states, said John Pastor, a professor of biology at the University of Minnesota-Duluth who also has published research on peatlands.

Minnesota peatlands, while extensive, comprise less than 1 percent of the world's total. Most, by far, are

in Canada and Russia.

Even so, Minnesota was particularly well-suited for the formation of peatlands. Much of the northern part of the state was once the flat bottom of glacial Lake Agassiz. Once that drained, the cool climate kept it from drying out and prevented vegetation from decomposing completely. The result was carbon-holding peat.

So far, the bog landscape has been self-protective. In 1892, U.S. government land surveyors declared it "practically unfit for any purpose." Many efforts to drain it for farming failed. The high water table and the peatlands' sheer size resisted road- and railroad-building. A generation ago, grandiose plans to convert peat to natural gas flamed out when federal funding dried up and some studies showed it would be inefficient.

About 3,000 acres of the state's peatlands are being "mined" for sphagnum moss, a garden soil additive. And while some dry areas of the peatland can support black spruce, the leading market for peatlands seems to be hunters, Zumeta said.

In 1986, a Finnish study found that lowering the water table in a peatland by slightly more than a foot tripled carbon-dioxide emissions within a few weeks, and that this rate continued for three years. Pastor, in a study that involved heating chunks of peat, found similar results.

Methane is the wild card


Many fear that methane, a gas with 20 times the heat-trapping potential of carbon dioxide, will be the sleeping dog awakened if peatlands and wetlands change with the climate, because those land forms also store large quantities of methane.

Zumeta said Minnesota's peat bogs, though long inhospitable, need active protection in the face of an ever-expanding population and unpredictable development and land-use patterns. With the rise of ethanol, peatland might become more valuable as cornfields, said Tom Malterer, director of the peat program for the Natural Resources Research Institute at UMD.

For now, peatlands are on the leading edge of a key strategy for countering climate change -- storing carbon in the landscape where it can't be emitted into the atmosphere. But they're one of the few elements in the climate-change dynamic that will provide benefits by being left alone.

"There's not much you can do except let them do what they do naturally, which is filter CO₂ out of the atmosphere," Pastor said.

Bill McAuliffe • 612-673-7646

[Continue
to next
page](#) 



Find this article at:

<http://www.startribune.com/local/13581681.html?pt=y>

Check the box to include the list of links referenced in the article.