

March 2023



## Op-Ed: Wetlands are a Nature-Based Solution to Climate Change

Since the time of European settlement, Vermont has lost half of its wetlands in the Champlain Basin to development and agriculture, and more than a third of wetlands that existed statewide.<sup>1</sup> Wetlands are known by a lot of different names – swamps, marshes, peatlands, sloughs, bogs, fens, and potholes, among others – and are a critical part of Vermont’s landscape. Wetlands comprise just 4%<sup>2</sup> of Vermont’s land area, yet they serve an outsized role because wetlands have a unique ability to improve water quality and store carbon. Wetlands reduce the impacts of flooding, increase natural water storage through drought periods, and provide a critical refuge for fish, birds and wildlife including many rare, threatened and endangered species at risk from climate change – in this way, wetlands are a vital strategy for increasing resilience to climate change, for both our human and natural communities.

While we are fortunate to have so many intact, high functioning, wetlands in Vermont, in order to maintain this fortune – to provide clean water, improved habitat, increased biodiversity, and space for flood storage we need to increase the amount of healthy wetlands in our Green Mountain State. As a step in that direction, the State of Vermont should have a “net gain” policy – protecting our remaining wetlands, while also restoring and enhancing wetlands that we drained or filled in the past. Recently, the Agency of Natural Resources proposed this approach to wetland management. We agreed with the Agency’s proposal and requested that the Climate Council include this policy as a recommendation of the Climate Action Plan, as well as a recommendation for funds and the necessary authority for implementation.

For years, Vermont experienced a loss of wetlands as they were filled or drained for agriculture and development. Increasingly, Vermonters have realized the value of wetlands as a nature-based solution to climate change and clean water a resource that is critical to protect. Wetlands offer critical habitat for 35% of Vermont’s threatened and endangered plant species and 21% of imperiled animals.<sup>3</sup> Restoring wetlands in the Vermont portion of the Lake Champlain Basin could achieve 15% of the pollution reduction goals required for the Lake by the EPA.<sup>4</sup> A study by The Trust for Public Land found that for

<sup>1</sup> “Lake Champlain Basin Program: Wetlands” (last visited July 28, 2021).

<sup>2</sup> “Vermont Conservation Design: Habitat and Natural Communities Technical Report” (Zaino et al., 2018).

<sup>3</sup> “Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont” (E. Thompson, E. Sorenson, & R. Zaino, 2019).

<sup>4</sup> “Optimizing wetland restoration to improve water quality at a regional scale” (Singh et al, 2019).

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every state dollar invested in conservation of our forests and wetlands, \$9 worth of natural goods and services is returned to Vermonters. The study also found that wetlands have by far the highest natural goods and services value per acre (\$590/acre) of any land cover type in Vermont. Wetlands provide nearly three times higher than the next highest land cover type (deciduous and mixed forests).<sup>5</sup>

Wetlands also provide multiple climate benefits. Due to the quick growth of wetland vegetation and the slow vegetative decay due to their saturated soil, wetlands provide an important “sink” to absorb and store carbon dioxide. Wetlands provide a valuable contaminant deposition zone, where wetland vegetation can catch and filter pollutants and sediment providing both water purification benefits and groundwater recharge. Further, wetlands in floodplains provide dynamic surface water storage to ease in the impacts of flooding from heavy precipitation events. A University of Vermont study found that the Otter Creek wetlands and floodplains prevented \$1.8 million in damages to the town of Middlebury during Tropical Storm Irene.<sup>6</sup> These types of flooding events have become more common, and come with little warning, as we have seen in recent weeks.

Wetlands are vital natural resources that must be protected and restored for Vermont to address the impacts of climate change, protect wildlife habitat, restore, and maintain the quality of our waters, increase biodiversity, and provide regenerative benefits for people and nature. In light of their significance, we believe the state of Vermont must commit to a “net gain” of wetlands.

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<sup>5</sup> “Vermont’s return on investment in land conservation” (Trust for Public Land, 2018).

<sup>6</sup> “Floodplains Saved Middlebury \$1.8 Million in Damage – Wetlands Prevent Millions of Flood Damage: Study,” Gund Institute for the Environment, University of Vermont, Carolyn Shapiro (July 6, 2016), <https://www.uvm.edu/news/gund/floodplains-saved-middlebury-18m-damage>