

Wetlands

Definition

Wetlands are vegetated ecosystems characterized by abundant water. All wetlands have three characteristics in common. First, all are inundated by or saturated with water during varying periods of the growing season. Second, they contain wetland or hydric soils, which develop in saturated conditions and include peat, muck, and mineral soil types. Finally, wetlands are dominated by plants that are adapted to life in saturated or inundated soils. Vermont's wetlands range in size from vernal pools and seeps that may be a few hundred square feet or less to vast swamps and marshes occupying thousands of acres along Otter Creek and Lake Champlain. (Note that vernal pools, although a type of wetland, are treated separately in this project because of their unique ecological functions.)

Ecological Function

Few natural systems have been studied as much for their ecological functions as have wetlands. Wetlands store large volumes of water and attenuate downstream flooding, a function that is likely to increase in importance in Vermont as climate change brings more frequent and larger storm events. Wetlands help maintain surface water quality by trapping sediments and removing nutrients and pollutants from surface waters before that water reaches streams or lakes. Vegetated wetlands along the shores of lakes and rivers can protect against erosion caused by waves along the shorelines during floods and storms. Many wetlands are associated with groundwater discharge and form the headwaters of many cold-water streams, another function that is likely to increase in importance with the expected warming and reduction in snowpack associated with climate change. Wetlands are well known for the critical wildlife habitat they provide for many species of birds, mammals, reptiles, amphibians, and insects, but some wetlands also provide critical spawning and nursery habitat for fish species. Although wetlands occupy only about five percent of the land area in Vermont, they provide necessary habitat for the survival of a disproportionately high percentage of the rare, threatened, and endangered species in the state. Examples of wetland dependent rare species include Calypso orchid, Virginia chain fern, marsh valerian, sedge wren, spotted turtle, and four-toed salamander.

Priority Target for an Ecologically Functional Landscape

All wetlands in Vermont with significant functions (Class 1 or 2). Note that vernal pools, a specific type of wetland, are treated separately.

Highest Priority: Any wetland that meets one or more of the following conditions:

- Is designated as a Class 1 wetland, or has characteristics and functions likely to meet the Class 1 standards (Potential Class 1)
- Is an exemplary (state-significant) wetland natural community occurrence, or is immediately adjacent to one
- Is wholly or partially within any of the highest priority landscape scale elements of Vermont Conservation Design
- Is wholly or partially within a small watershed with >50% of the land area developed



- Is wholly or partially within an important watershed for Lake Champlain water quality: o Missisquoi River watershed
- South Lake A & B watersheds

Guidelines for Maintaining Ecological Function

Maintain or restore natural ecological processes, including unaltered soils and hydrology, native vegetation appropriate to the site, and suitable conditions for native fish and wildlife species. Effective conservation should include appropriate upland buffer zones, the ecological processes that support wetlands (especially hydrology), and a network of connected lands, waters, and riparian areas to allow ecological exchange between wetlands, including the ability of component species to shift over time in response to changing environmental conditions.

Restoration Needs

More than 35% of the original wetlands in Vermont have been lost to agriculture, development, and other land uses. Restoration of these wetlands is needed to achieve full ecological function.

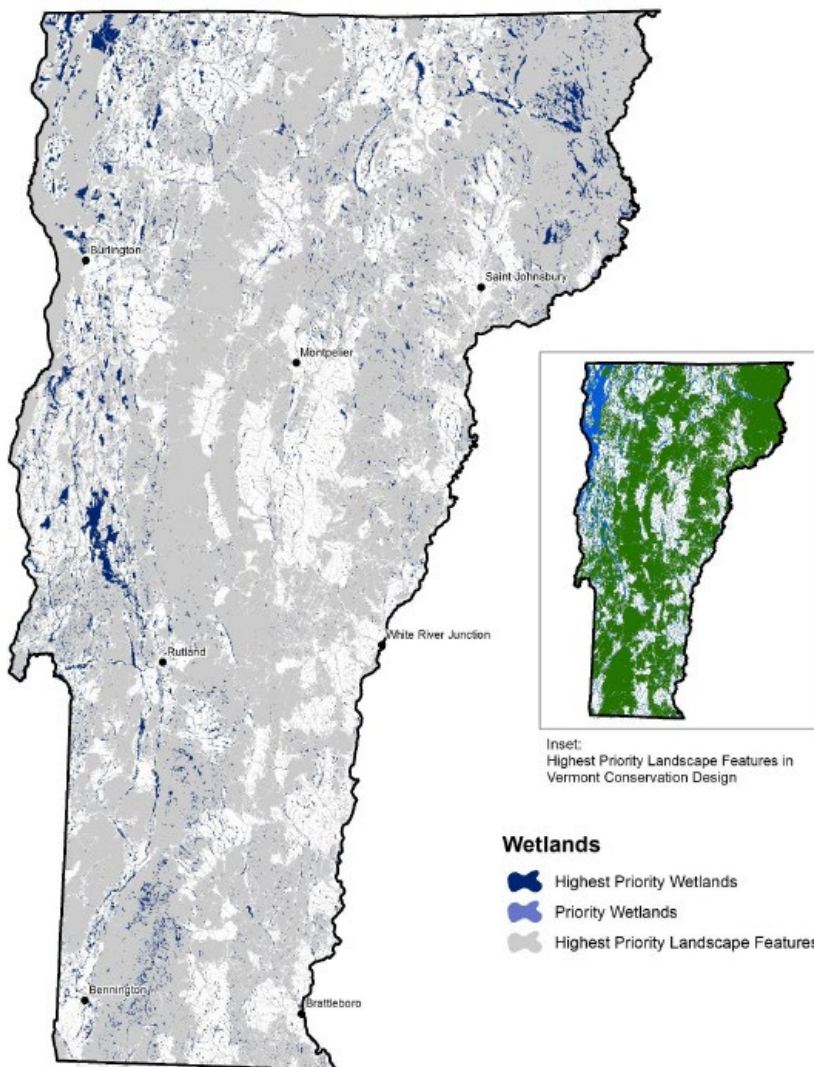
Methods and Rationale

Wetlands occupy a small portion of the Vermont landscape but contribute crucial ecological functions. Criteria for highest priority wetlands were selected in order to identify wetlands that make exceptional contributions to biological diversity or water quality, or which are inseparable from the functioning of the landscape scale elements of Vermont Conservation Design.

Mapping Comments

The map layer is an incomplete representation of the priority and highest priority targets. Mapping represents the best current knowledge of the location of targets on the ground. The approximate location of wetland targets is shown using VSWI, NWI, and Natural Heritage data sources. All polygons are approximate. Additional wetlands exist that are not represented in the map data. Field verification may be needed to confirm that any wetland meets the target criteria and provides appropriate ecological functions.

Map 6: Wetland Targets



Note that wetlands mapping is incomplete and there are additional wetlands that meet target criteria.



For more information

For more information specific to this component, contact Laura Lapiere, Vermont Department of Environmental Conservation, Wetlands Division, laura.lapiere@vermont.gov