



Ownership/ Visit

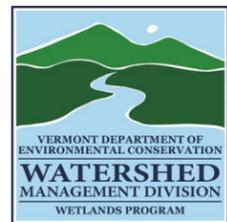
Chickering Bog Natural Area is part of The Nature Conservancy's (TNC) statewide preserve system. TNC has long recognized the value of this wetland to Vermont's natural heritage, and first began its work toward protecting the fen and its surrounding watershed in 1979. The final land purchase was completed in 2014, bringing the preserve to 237 acres.

The Natural Area offers an easy one-mile walking trail through the forest surrounding the fen. The trailhead is located on Lightning Ridge Road in Calais. A spur trail leads to a boardwalk that extends onto the fen, allowing visitors to observe the rare natural community without disturbing it (foot traffic is a major threat to the fen's fragile plant community). A kiosk at the viewing area provides educational information for visitors.

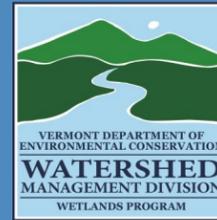
Notable Species

- ◆ Woolly-fruited sedge
- ◆ Pitcher Plant
- ◆ Sundew
- ◆ Showy Lady's Slipper
- ◆ Common Yellowthroat
- ◆ Lincoln's Sparrow

Chickering Fen: Vermont CLASS I WETLAND CANDIDATE



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 1 National Life Drive, Main 2
 Montpelier, VT 05620-3522
www.vtwaterquality.org/wetlands.htm
 802-490-6100 or email address



Class I Wetlands
Candidate

Chickering Fen

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The Functions & Values of a Wetland

- ◆ Water Storage for Flood Water & Storm Runoff
- ◆ Surface & Ground Water Protection
- ◆ Fish Habitat
- ◆ Wildlife Habitat
- ◆ Exemplary Wetland Natural Community
- ◆ Rare, Threatened, & Endangered Species Habitat
- ◆ Education and Research in Natural Sciences
- ◆ Recreational Value & Economic Benefits
- ◆ Open Space & Aesthetics
- ◆ Erosion Control

Preserving wetland function for future generations.

Chickering Fen is a prime example of an Intermediate Fen, a rare natural community in Vermont as described by Vermont Fish and Wildlife Department's Natural Heritage Inventory. The 15-acre fen and its surrounding watershed comprise the 237-acre Chickering Bog Natural Area in Calais. The State of Vermont ranks the significance of wetlands based on 10 functions and values they provide for the general public and the environment. According to these criteria, the fen is highly significant.

Chickering Fen provides unique wildlife habitat, including breeding habitat for waterfowl and amphibians, deer wintering grounds, and feeding opportunities for moose, bear, and other mammals. The wetland is a plant diversity hotspot, and is home to at least eight rare, threatened, and endangered species. It has significant floodwater storage capacity, and its dense vegetation stabilizes the soil and slows and filters surface water, protecting areas downstream from pollution and sedimentation.

The fen contains a thick layer of peat (partially decomposed plant material) that reaches almost 30 feet in depth in places. The peat and living vegetation in the fen provide long-term carbon storage, playing an im-

portant role in mitigating climate change. Unlike some natural communities that may regenerate relatively quickly after a major disturbance, Chickering Fen formed over thousands of years and this unique and important wetland is irreplaceable.

Perhaps one of the greatest contributions of this wetland is its accessibility to the public. Owned by The Nature Conservancy, Chickering Bog Natural Area offers a one-mile walking trail for public visitation, only about 10 miles from downtown Montpelier. The trail passes through a scenic landscape featuring softwood swamps and upland forest, and extends into the fen on a boardwalk built by the Vermont Youth Conservation Corps. The wetland and surrounding forest provide excellent opportunities for wildlife-watching, photography, and aesthetic enjoyment.



Planning for the **FUTURE**

What is a Class I Wetland?

These wetlands have a high rating in one or more of the listed 10 functions and values. They are healthy, in great condition, and intact. A Class I wetland is considered exceptional or irreplaceable, and deserves the highest level of protection under the Vermont Wetland rules. Criteria and sub-criteria have been developed to evaluate these special wetlands.

Criteria

- ◆ Representative Example of Wetland Type
- ◆ Rare Community Type
- ◆ Community Assemblage/ Wetland Complex
- ◆ Landscape Association

Subcriteria

- ◆ Rare, Threatened, or Endangered Species present
- ◆ Undisturbed Condition
- ◆ Intact Landscape
- ◆ Research/ Education
- ◆ Connectivity



Locally known as “Chickering Bog”, this wetland is actually an Intermediate Fen. Both bogs and fens are peatlands – wetlands that form when cool temperatures and permanent moisture slow the process of decomposition. As plants die in these communities, they build up in a thick, spongy layer of partially decomposed material called peat, and a variety of specialized plants grow on the peat surface. Bogs receive most or all of their water from precipitation. Fens, in contrast, receive water from precipitation as well as from calcium-rich groundwater, which makes them richer in nutrients.

Chickering Fen began to form about 10,000 years ago, when a retreating glacier gouged out a bedrock basin that filled in with water. Vegetation grew around the resulting pond, and peat began to accumulate. Over thousands of years, the vegetation and peat gradually expanded toward the center of the pond, creating a thick, floating mat. A small patch of open water still remains in the center.

Fens vary in their level of mineral enrichment, depending on the amount of groundwater input

and the chemistry of the local bedrock. As enrichment increases, decomposition occurs more rapidly, and nutrients are more readily available. The level of enrichment falls on a spectrum, resulting in three unique natural community types: poor, intermediate, and rich fens. Liz Thompson, author of *Wetland, Woodland, Wildland* (Vermont’s guide to natural communities) cites Chickering Fen as



Photo credit: Rebecca Chalmers

the prime example of an Intermediate Fen, because of its size and pristine condition. Because their environmental conditions differ, each of these wetland types supports a different community of plants and animals. The plant community at Chickering Fen includes sedges, brown mosses, sweet gale, carnivorous plants, and several rare and endangered species. Even within the fen, differences in acidity and

Chickering Fen

Ecology & Wildlife

enrichment cause variability in the vegetation. In the northern portion, the peat is nearly 30 feet deep, and supports a plant community similar to a bog: hummocks of low shrubs including Labrador tea and leatherleaf, along with scattered and stunted trees. South of the central pond is a dense stand of northern white cedars. In areas of groundwater upwelling and near an outlet stream, sedges are the dominant plants. Dense stands of bog sedge lean gracefully to the side, and tower over smaller herbs below. The fen is bordered by a shrub lagg -- a transition zone between the peatland and the adjacent mineral soils of the surrounding landscape.

Chickering Fen is home to numerous wildlife species, including mammals like voles and shrews; birds such as Lincoln’s sparrow, common yellowthroat, and common snipe; and a diversity of frogs, salamanders, dragonflies and other insects. The surrounding mosaic of softwood swamps and other forested natural communities provides important breeding habitat for waterfowl and amphibians, and wintering habitat for white-tailed deer.



Why It Matters

Chickering Fen may be the best example of an Intermediate Fen in the State of Vermont. It provides immense ecological value as habitat for wildlife and plants, including a number of rare, threatened and endangered species. With its easily accessible walking trail, this site provides a unique opportunity for the public to enjoy and learn about this rare natural community, along with the various other communities within the 237-acre preserve. The wetland also provides important watershed functions, including floodwater storage, erosion control, and surface and groundwater protection.

Changes in the quality or amount of groundwater entering a fen may alter the rate of decomposition, change the levels of acidity and enrichment, and otherwise alter the specific



Photo credit: Everett Marshall, VT Fish & Wildlife

environmental conditions on which this natural community depends. Protection of the fen therefore requires not only protection of the wetland itself, but also its watershed and groundwater recharge zones. Changes in land use and land

cover within these areas may cause irreversible impacts.

Fens sequester carbon in the form of peat, helping to slow the process of climate change. And yet, fens are very sensitive to disturbances and are projected to suffer from climate change more than other wetlands, leading to increases in carbon emissions as well as decreased water quality.

Since fens take thousands of years to form, they are very difficult to restore. Reclassifying Chickering Fen as Class I will protect this significant natural heritage resource and the functions and values it provides.

Chickering Fen Class I Candidate

- ◆ **Representative Example** of an Intermediate Fen
- ◆ **Rare Communities** of Intermediate Fen
- ◆ 8 different **RTE Species**
- ◆ Intermediate Fen is **Undisturbed**
- ◆ Part of an **Intact and Unfragmented** Landscape
- ◆ Valuable Resource for **Education and Research**

Chickering Fen: An outstanding educational resource

“Chickering Fen is the one of the premier sites in Vermont to bring my Wetlands Ecology students to explore and study the wild beauty and natural history of our wetlands”

- Jeff Parsons, Sterling College

