



Unique Wetland Report

Atherton Meadows

Whitingham, VT

This large beaver wetland complex with floating fen mat supports two rare plant species and a state significant Woodland Seep. The wetland supplies clean water and flood resilience to Tobey Brook downstream.



May 2, 2024

SITE NAME: Atherton Meadows Wetland

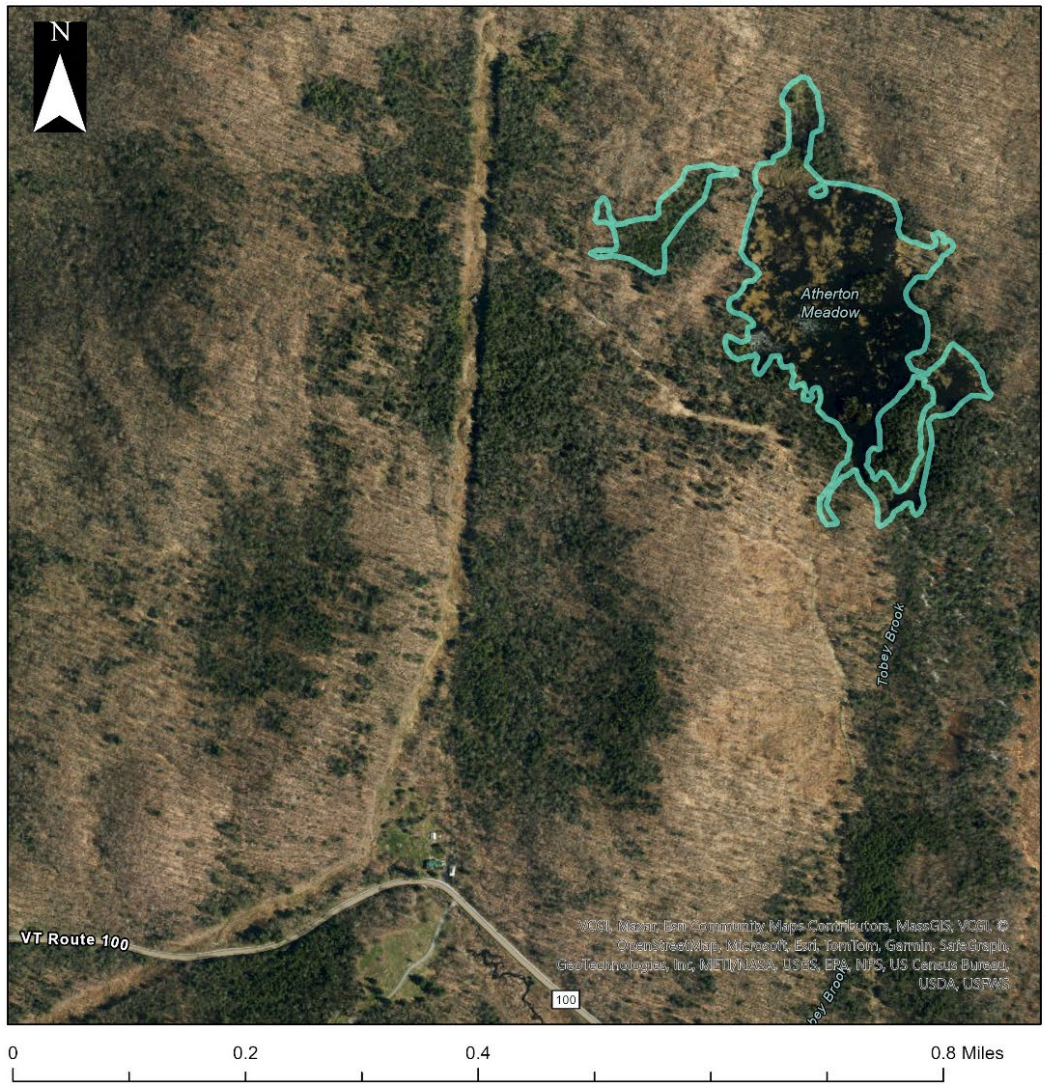
LOCATION: In Atherton Meadows Wildlife Management Area in Readsboro, north of Route 100, along Tobey Brook.

SITE DESCRIPTION: This site consists of a large beaver-impounded wetland in a depression on the top of a mountain. The beaver wetland includes floating peatland, open water, and aquatic bed vegetation. Woodland Seeps occur on the edges and in nearby swales. The area is primarily forested. The Deerfield River, Harriman Reservoir, and Sadawga Lake are nearby.

EXISTING LAND USE TYPE(S):

Undeveloped, Residential (single family), Undeveloped, Agriculture, Forestry, Parks/Rec/Trail

MAP: (next page) *Area assessed outlined in blue*



Atherton Meadows Unique Wetland

Wetland Survey Area, Whitingham, VT
Map created by Charlie Hohn on May 2, 2024

Legend
Wetland

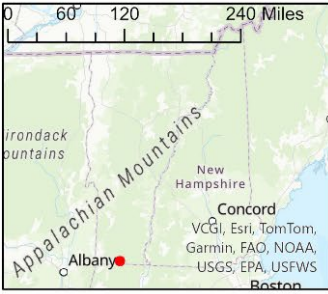


Figure 1: area of unique wetland. Coordinates of center of wetland: 42.7771932, -72.9092685

CURRENT CLASSIFICATION: This wetland is currently classified as a Class II wetland as it meets several categories; the wetland is identified on the Vermont Significant Wetlands Inventory (VSWI) map; it contains dense persistent non woody and woody vegetation adjacent to a stream and open body of water, and is over 2,500 sq ft in size; it contains a species defined by the Natural Heritage Inventory as rare, threatened, or endangered, and portions are mapped as state significant by the Vermont Natural Heritage Inventory (5, 6, 7).

WETLAND DESCRIPTION: The wetland complex occurs on a large, discrete depression near the top of a 2000-foot mountain and is surrounded by mature forest and recently logged areas. The wetland is at the south end of the Green Mountains and drains into the Deerfield River. The area of beaver-influenced wetland is 22 acres in size, with several smaller forested wetlands nearby. Woody vegetation is limited, with only a few red maples (*Acer rubrum*) present. Emergent vegetation includes rattlesnake manna grass (*Glyceria canadensis*), three-way sedge (*Dulichium arundinaceum*), tawny cottongrass (*Eriophorum virginicum*), and sallow sedge (*Carex lurida*) (1). There is also floating-leaf vegetation such as watershield (*Brasenia schreberi*) (1). The floating mats consist of dense *Sphagnum* moss species and are intermediate between beaver wetland and Poor Fen natural communities. On the northern side of the site, some of the area previously mapped as Woodland Seep by NHI has been inundated by additional beaver dams and now contains snags. A patch of invasive common reed (*Phragmites australis*) is also present on the floating mat.

Table 1: Estimated cover of natural communities and other important cover types in the wetland.

Natural Community/Vegetation Cover Type	Acres	Percent Cover
aquatic bed vegetation	7.9	33.2
Beaver Meadow/Poor Fen	6.1	25.8
Other Beaver Wetland	2.5	10.5
Open Water	2.3	9.7
Cattail Marsh	1.9	7.9
Hemlock-Balsam Fir-Black Ash Seepage Swamp	1.3	5.5
Hemlock-Sphagnum Acidic Basin Swamp	1.0	4.1
Woodland Seep	0.6	2.7
successional shrub swamp	0.2	0.6

HYDROLOGY: These wetlands are set in a basin which is approximately 1,830 ft (558 m) in elevation. The wetlands are in a small watershed, though the highest point within the basin reaches 2,060 ft (628m), and the high elevation of the wetland makes it a likely source for groundwater in nearby areas. The bedrock appears shallow, and seeps are present in many areas above and below the wetland. The wetland appears to always contain standing water and floating mats of vegetation, though this is likely subject to changes from beaver activity. The wetland drains south through a tall beaver dam which covers a short span, with at least one additional dam below it. It drains into Tobey Brook, which drains directly into the Deerfield River, which feeds into the Connecticut River and eventually Long Island Sound.

SURROUNDING LAND USE: The surrounding land use is a mix of undeveloped land and forestry. Some areas around the wetland have been logged recently and further in the past. There is not any substantial development around the wetland.

RELATION OF WETLAND TO OTHER NEARBY WETLANDS: There are multiple smaller wetlands present in the Wildlife Management Area. Several of these have been assessed, including a hemlock swamp to the immediate west of Atherton Meadows, and two seeps to the south near Tobey Brook. Some of the seeps are assessed as state significant examples of this natural community type by the Natural Heritage Inventory (NHI) (7). The NHI has also identified a cluster of state significant Hemlock-Balsam Fir-Black Ash Seepage Swamps to the north of the main Atherton Meadows wetland (6). To the west of Route 100 along Number 9 Brook there are other wetlands, which were found to be more disturbed by logging, road, or ATV use, and lingering effects of past land use. Further east is the Lake Sadawga floating bog, which includes a state significant Poor Fen ecosystem (4). More broadly, there are additional beaver wetlands, seeps, and softwood swamps scattered about in the mountain hollows of this region.

Overall, these other wetlands do contribute to some of the functions of the Atherton Meadows wetland by allowing species such as waterfowl to move between them and allowing for pollination of wind-pollinated plants and occasional propagule transfer between similar habitats.

CUMULATIVE IMPACTS TO THE WETLAND: Ongoing logging was observed in upland areas near the wetland, and a large road was recently constructed or improved heading up to the wetland. This has caused some buffer impacts to the wetlands. Past logging in the forested wetlands, as well as the history of sheep grazing have had lingering cumulative effects. The effects of logging roads and skid roads are often longer lasting than the effects of tree removal after logging takes place. Additionally, an area of invasive common reed has taken root in the floating mat portion of the beaver wetland, causing impact to that portion of the wetland that may spread elsewhere.

There are no wetland projects or permits recorded in the surveyed wetland area.

BUFFER ZONE: The buffer for this wetland is intact forest within both 50 and 160 feet, except for a few areas of recent logging and logging roads on the west side of the wetland, some of which are within a few feet of the wetland edge. Vegetation was already regrowing in the areas that were logged, so the impact

would be less than that of a developed area or farm field. According to the online NRCS soil map, the buffer soils are primarily Rawsonville-Hogback and Houghtonville-Rawsonville fine sandy loams (11).

FUNCTIONS AND VALUES PRESENT:

WATER STORAGE FOR FLOOD WATER AND STORM RUNOFF

Wetlands provide storage for floodwater and stormwater runoff; and can make significant contributions to reducing risks of public safety, reducing damage to public and/or private property, reducing downstream erosion, and/or enhancing the stability of habitat for aquatic life.

This wetland has a constricted outlet, with physical space for floodwater to expand, and does have evidence of flooding (as well as continuous standing water). It is large and naturally vegetated, and there are areas of development downstream. The wetland contributes to base flow in the outlet stream as water held back during floods leaks out of the beaver dam during periods of drought.

SURFACE AND GROUND WATER PROTECTION

Wetlands can make a significant contribution to the protection or enhancement of the quality of surface or of ground waters.

This wetland is high in the watershed, with a constricted outlet, permanent inundation, and abundant native vegetation. It functions as the headwaters of Tobey Brook and provides consistent surface water to the stream during times of drought. Given its location at a relatively high elevation and the prevalence of seeps and springs below, it's likely an important source of groundwater recharge.

WILDLIFE HABITAT

Wetlands are significant for this function if they provide habitat to one or more of the different wildlife guilds, including waterfowl, songbirds, shorebirds, reptiles, amphibians, water-dependent mammals, and large mammals. In addition, the physiognomic structure of a wetland can also be used as an indicator for the diversity of wildlife habitat present.

This wetland provides several important wildlife functions including roosting, staging, feeding, and nesting habitat for waterfowl; buffers and nest sites for wading birds in the forms of snags, open water, and deep marsh; wintering habitat for white-tailed deer in the smaller softwood swamps; habitat for moose in the deep marsh; active beaver activity; ability to support muskrat, otter, and mink; and possible amphibian and reptile habitat. The wetland is owned and managed by the Vermont Fish and Wildlife Department for wildlife and habitat conservation. A 2014 Long Range Management Plan from the Agency of Natural Resources lists 30 species that are known to use the area (10).

The wetland is large, supports multiple species, is associated with a wildlife corridor, and has been identified as an important habitat by F&W, so it provides wildlife habitat at a higher level.

EXEMPLARY NATURAL COMMUNITIES

Wetlands identified as high quality or rare examples of one of Vermont's recognized natural community types make an important contribution to Vermont's natural heritage.

NHI has identified and mapped a state significant Woodland Seep natural community at the north end of the wetland complex (7). This is an S4 natural community type (figure 1). However, during the 2022 visit, this area was observed to have been flooded by beavers and might not qualify as this type anymore. Other Woodland Seep and Hemlock-Balsam Fir-Black Ash Seepage Swamp (also S4) natural communities were observed in the area that could meet the ranking and mapping standards of the NHI (1), but were not formally assessed. The wetland is large, includes examples of several wetland community types.

State Rank: these ranks indicate the relative rarity of natural community types and are assigned by the Vermont Nongame and Natural Heritage Program
S1: very rare in the state, generally with fewer than five high quality occurrences
S2: rare in the state, occurring at a small number of sites or occupying a small total area in the state
S3: high quality examples are uncommon in the state, but not rare; the community is restricted in distribution for reasons of climate, geology, soils, or other physical factors, or many examples have been severely altered
S4: widespread in the state, but the number of high quality examples is low or the total acreage occupied by the community type is relatively small
S5: common and widespread in the state, with high quality examples easily found

Figure 2: Description of state ranking system (12).

RARE, THREATENED, OR ENDANGERED SPECIES

Wetlands that contain rare, threatened, or endangered species of plants or animals are significant wetlands.

This wetland supports a population of an S1 very rare plant species (2) and an S2S3 uncommon to rare plant species (3). There is, however, some uncertainty as to the ID of the S1? plant species.

EDUCATION AND RESEARCH IN NATURAL SCIENCES

Wetlands can provide valuable resources for education or scientific research.

This site is known by NHI and other entities to be a diverse and important wetland. The wetland is on public land. As of January 2024, eight people have collected iNaturalist observations of 106 species in the site (8), and 6 eBird checklists totaling 47 bird species have been recorded (9).

RECREATIONAL VALUE AND ECONOMIC BENEFITS

Wetlands can provide substantial recreational values or economic benefits.

This wetland is largely on public land, and is managed for wildlife habitat, hunting, trapping, and wildlife observation. The areas around the wetland have historically and recently been used for logging. The wetland is accessible by hiking up a logging road from a public parking area on Route 100.

OTHER WETLAND QUALITIES

COMMUNITY ASSEMBLAGE/WETLAND COMPLEX

Wetlands that are considered exceptional for this criterion are larger wetland complexes usually associated with multiple wetland community types and bodies of water, which have high species diversity and function. These provide exceptional function and value.

This wetland has a large and diverse example of a Beaver Wetland, plus floating fen mats and a Woodland Seep. Different successional stages of Beaver Wetland are present, including an area of standing dead forest, large areas of open water, and smaller areas of emergent marsh. Other similar smaller wetlands are present nearby as well.

LANDSCAPE ASSOCIATION

These wetlands are irreplaceable because of the critical nature of their landscape position, and the corresponding functions in that landscape. They are often exceptional because of their size, function, and value.

This wetland occupies an unusual and somewhat dramatic location on top of a large hill, with smaller wetlands and upland forest nearby. The area surrounding the wetland is a Vermont Fish and Wildlife owned and managed Wildlife Management Area. According to the Fish and Wildlife Department, the area was a sheep farm until the early 1900s and was purchased by F&W in 1964. The surrounding area is currently undergoing active logging operations, but there are forests of varied age including mature forests (but no old growth) around the wetland. Small seeps and basin swamps occur amongst the upland forest. Beyond the wildlife management area boundary, there is a large dam and reservoir to the north, with the Deerfield River exiting the dam and flowing through a gorge to the west. The village of Readsboro is also to the west. To the east is Lake Sadawga, an artificial reservoir with a floating bog island. There are also areas of wetland between Lake Sadawga and Atherton Meadows. The broader landscape does include a few cleared fields especially to the east, but is primarily forested with scattered roads, villages, and rural homes.

RARE, THREATENED, OR ENDANGERED SPECIES HABITAT

This wetland is known to support an S1 plant species (2) and a S2S3 plant species (3).

UNDISTURBED CONDITION

This wetland is in good ecological condition and received an excellent VRAM score of 91 indicating reference status (1). There is minimal disturbance to the wetland area or the buffer surrounding it. Other nearby wetlands were also found to be in good condition.

INTACT LANDSCAPE

The landscape around this wetland is in good condition, though not pristine. The buffer is mostly intact but is locally intersected by recent logging and a logging road. The Vermont Rapid Assessment (VRAM) score was 91, a very high score (1). Condition rating was 85% indicating a very good-condition wetland. (1). Three smaller wetlands nearby received VRAM scores of 74, 79, and 81 (1). The lower scoring VRAM – a small hemlock swamp west of the main beaver complex - had somewhat lower condition score than the main complex. The two higher scoring VRAMs – seeps to the south of the beaver complex – had condition scores of 100% indicating reference condition (1). While these seeps were not surveyed by NHI, they would likely be considered state significant similar to the ones to the north. Much of the upland forest around the wetlands is also considered a state significant occurrence of Hemlock-Northern Hardwood Forest (5) indicating important upland habitat around the wetland as well.

References

- (1) Vermont Wetlands Program. Wetlands Bioassessment Database. Data from Site Visit on September 26, 2022. Accessed 1/10/2024.
- (2) [Vermont Heritage Inventory Element Occurrence 7487](#). Accessed 1/10/2024.
- (3) [Vermont Heritage Inventory Element Occurrence 9197](#). Accessed 1/10/2024.
- (4) [Vermont Heritage Inventory Element Occurrence 9824](#). Accessed 1/10/2024.
- (5) [Vermont Heritage Inventory Element Occurrence 10129](#). Accessed 1/10/2024.
- (6) [Vermont Heritage Inventory Element Occurrence 10130](#). Accessed 1/10/2024.
- (7) [Vermont Heritage Inventory Element Occurrence 10131](#). Accessed 1/10/2024.
- (8) [iNaturalist – Atherton Meadows WMA](#). Accessed 1/10/2024.
- (9) [eBird – Atherton Meadows WMA](#). Accessed 1/10/2024.
- (10) Vermont Agency of Natural Resources. [Atherton Meadows Wildlife Management Area Long Range Management Plan](#). August 4, 2014. Accessed 1/10/2024.
- (11) Natural Resources Conservation Service. [Web Soil Survey](#). Accessed 1/10/2024.
- (12) [NatureServe Biotics Help Page](#). Accessed 1/24/2024.