



## Unique Wetland Report

### Lily Pond

Vernon, VT

The only known occurrence of an Outwash Plain Pondshore natural community in Vermont. This wetland is host to many rare, threatened, and endangered species.



May 2, 2024

**SITE NAME:** Lily Pond

**LOCATION:** Lily Pond is located within the town of Vernon, VT, in the southeast corner of the state. The site is located west of Pond Road and south of Lily Pond Road, less than a mile north of the Massachusetts border.

**SITE DESCRIPTION:** The pond and its shores support abundant emergent and floating vegetation, with some woody wetland vegetation on its upland edges. A large forest tract extends to the south and west, while developed and agriculture land border the pond to the north and east.

**EXISTING LAND USE TYPE(S):** Residential (single family), Undeveloped, Agriculture, Forestry, Parks/Rec/Trail

**MAP:**

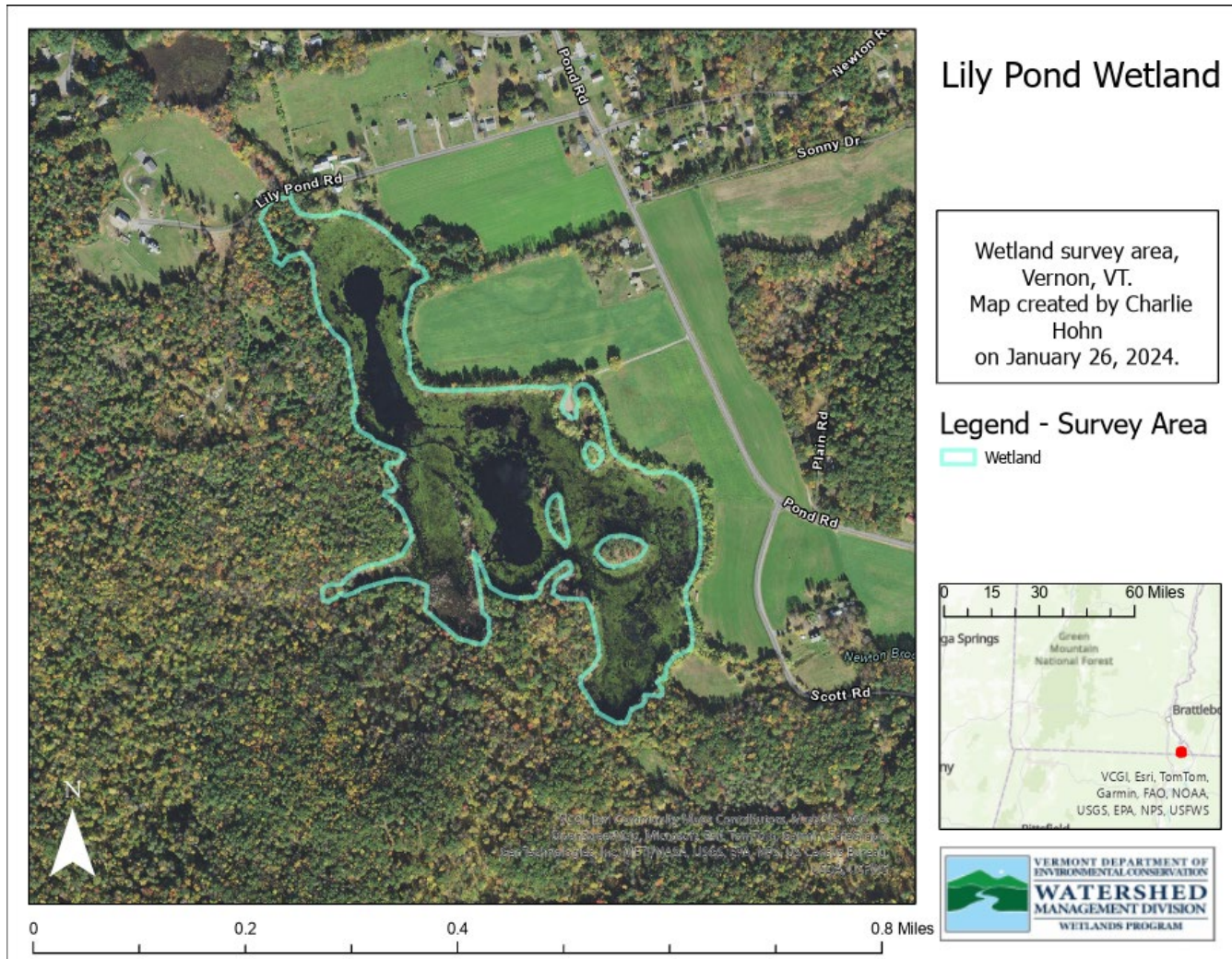


Figure 1: The unique wetland area boundary is included in white. The plot location is 42.736637, -72.510178.



**CURRENT CLASSIFICATION:** This wetland is currently classified as Class II, as it meets several Class II categories from Section 4.6 of the Vermont Wetland Rules: the wetland is identified on the Vermont Significant Wetlands Inventory (VSWI) map; it contains dense, persistent non woody vegetation; and contains a species in the Natural Heritage database as rare, threatened, and endangered.

**WETLAND DESCRIPTION:** At approximately 47 acres in size, Lily Pond is host to a few natural community types, one being the unique and rare Outwash Plain Pondshore (1). The Outwash Plain Pondshore occurs along most of the edges of the pond, where the land is submerged in the spring and exposed in the summer. Some dominant species occurring here are slender fimbry (*Fimbristylis autumnalis*), an S1 species in Vermont (52), golden hedge hyssop (*Gratiola aurea*), and pale St John's-wort (*Hypericum ellipticum*). There is also a small floodplain forest near the public boat launch (1). Deeper areas of the pond support aquatic beds which are primarily dominated by lily pads.

Lily Pond is the only wetland in Vermont known to occur on a well-drained glacial outwash, which is similar to the coastal plain pond shores of the Atlantic coast (52). Glacial outwashes are home to very porous deep sand and gravel deposits; the porosity allows the groundwater table to drop substantially in the summer, which allows for sizable water fluctuations around the pond. The area to the west and south, which includes most of the pond's watershed, consists of recently logged sloped forest. To the north and east are single family homes and fields. A few small intermittent streams feed into the pond, while an altered and straightened ditch now serves as the artificial outlet.

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

Natural Community/Vegetation Cover Type	Acres	Percent
aquatic bed vegetation	26.6	57.1%
Outwash Plain Pondshore	11.6	24.9%
open water	5.4	11.6%
Hemlock-Balsam Fir-Black Ash Seepage Swamp	1.0	2.3%
floodplain forest	0.8	1.7%
Beaver Wetland	0.7	1.6%
Basin Shrub Swamp	0.4	0.9%

**HYDROLOGY:** Lily Pond is a very shallow pond that also qualifies as wetland over most of its surface. The primary water sources of this pond and wetland complex are precipitation and sheet flow. Storm events contribute water through flashy intermediate streams following heavy rain and snowmelt events. Groundwater from a seepage swamp on the north end of the pond may be contributing water as well, however it may be draining north, away from the pond's small watershed. A steep slope on the southwest corner drains directly into the pond, while the artificially ditched outlet drains out to the southeast when the pond is at capacity. Outwash Plain Pondshores rely on fluctuating water levels for a seasonally exposed and vegetated shoreline; further degradation of the outlet on Lily Pond could result in the loss of water

level fluctuations and the loss of this rare natural community. The deeper portions of the pond hold water throughout the year.

**SURROUNDING LAND USE:** Surrounding land use is a mix of forested and recreation to the south and west, with agriculture and residential to the east and north.

**RELATION OF WETLAND TO OTHER NEARBY WETLANDS:** This wetland has a relatively small watershed and is likely not affected by any other wetlands, with the exception of a beaver influenced wetland to the northwest which may contribute as a source of hydrology to Lily Pond during flood events. The outlet of the wetland drains into agricultural fields and ultimately into the Connecticut River. Wildlife such as migratory birds may travel between this wetland and other wetlands in the Connecticut River Valley, and plant propagules also spread between wetlands allowing for a greater level of viability in these populations.

**CUMULATIVE IMPACTS TO THE WETLAND:** There are two small parcels of conservation land on either side of Lily Pond, one being a small boat launch access area on the east side of the pond, the other being a 28-acre parcel on the west side with approximately 200 meters of pond shore. Depending on management practices of the fields on the east side of Lily Pond, run-off could potentially cause a shift in water quality, particularly if run-off is high in fertilizer or other nutrient-rich residues. Privately owned waterfront on the west side is minimally developed and likely not influencing hydrology or water quality of the pond.

**BUFFER ZONE:** The western and southern buffers are at least 150 feet wide and primarily forested. On the northern and eastern sides, the buffer is often only 50 feet wide with agricultural land beyond it. Some buffer encroachment comes from the boat launch parking lot which directly abuts the wetland. Buffer soils include Quonset and Warwick soils, 2 to 8 percent slopes; Westbury fine sandy loam, 3 to 8 percent slopes, very stony; and Marlow fine sandy loam, 8 to 15 percent slopes, very stony (47).

## **FUNCTIONS AND VALUES:**

### ***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.*

Lily Pond is a naturally vegetated, 41-acre wetland with a constricted outlet in the southeast corner which drains to the Connecticut River through residential, forested, and agricultural areas. The steep slopes adjacent to Lily Pond indicate large volumes of runoff reach the wetland; the fluctuating water levels also indicate seasonal flooding. The size of the wetland provides physical space for floodwater expansion and retention, intercepting surface waters while notably decreasing flow velocities downstream.

### ***SURFACE AND GROUND WATER PROTECTION***

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

Lily Pond’s hydroperiod remains permanently flooded or saturated throughout the year, with persistent vegetation comprising a defined island. It provides a filter between slow-moving water and sediments, nutrients, and toxins. The complex’s size and natural vegetation provide water quality protection.

**FISH HABITAT**

*Wetlands can be used for spawning by northern pike and other important fish species; wetlands also can provide important fish habitat.*

Lily Pond provides spawning, nursery, feeding, and cover habitat for fish species. The wetland supports abundant emergent and floating vegetation; and the watershed is noted as having brook and brown trout by the Eastern Brook Trout Joint Venture (50)

**WILDLIFE HABITAT**

*Wetlands may provide significant 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.*

Lily Pond provides a mosaic of feeding and breeding habitats for many different wildlife species. Wading birds, such as the great blue heron, green heron, and great egret have been documented here (46). The open water habitat also supports breeding pairs of waterfowl, nest sites for wading birds, and migratory birds which require wetland habitat. Waterfowl documented at Lily Pond include the wood duck and hooded merganser; migratory birds documented at Lily Pond include the northern flicker, snow bunting, and dark-eyed junco (46). The abundant emergent vegetation and muddy shores provide habitat for muskrat, otter, and mink; tracks were observed during the 2022 Wetlands Program Bioassessment site visit (1).

**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.*

Lily Pond is home to the unique and rare Outwash Plain Pondshore natural community. It has been identified and mapped by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department. It is the only occurrence of this natural community in the state, with an S1 state rank and a B in Natural Community condition, indicating good estimated viability and ecological integrity (48, 49).

<b>State Rank:</b> these ranks indicate the relative rarity of natural community types and are assigned by the Vermont Nongame and Natural Heritage Program
<b>S1:</b> very rare in the state, generally with fewer than five high quality occurrences
<b>S2:</b> rare in the state, occurring at a small number of sites or occupying a small total area in the state
<b>S3:</b> 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
<b>S4:</b> 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
<b>S5:</b> common and widespread in the state, with high quality examples easily found

Figure 2: Description of state ranking system (48).

### ***RARE, THREATENED, OR ENDANGERED SPECIES***

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

Lily Pond is home to eighteen different rare, threatened, and endangered plant and animal species; this includes sixteen plant species, one dragonfly species, and one butterfly species, according to Vermont Natural Heritage Inventory. The wetland is also host to eleven documented uncommon species including plants, reptiles, and insects. Specific species identification is not listed here for the protection of these species. For a full list of rare, threatened, and endangered species, consult the Natural Heritage Inventory database and the ANR Natural Resource Atlas, as well as references 2-44 below.

### ***EDUCATION AND RESEARCH IN NATURAL SCIENCES***

*Wetlands can provide valuable resources for education or scientific research.*

Lily Pond is publicly owned and provides a boat launch to access the wetland. It is the only example of its type in Vermont and is important for future research. There are 125 observations of 63 species listed for the area on the citizen scientist website iNaturalist (45).

### ***RECREATIONAL VALUE AND ECONOMIC BENEFITS***

*Wetlands can provide substantial recreational values or economic benefits.*

Lily Pond is located on public land and provides a boat launch to access the wetland. It provides ample opportunity for fishing, boating, and exploring; and is listed on the Town website's recreation page (51).

### ***OPEN SPACE AND AESTHETICS***

*Wetlands can significantly contribute to the open-space and aesthetic character of the landscape.*

As a wetland and pond type more common in areas south of Vermont, Lily Pond is a prominently distinct landscape in the state, with frequently fluctuating open water tables and exposure of unique Outwash Plain Pondshore. It is easily viewed from a public parking area and can be accessed with small boats via a boat launch.

### **OTHER WETLAND QUALITIES**

#### ***RARE COMMUNITY TYPE***

Lily Pond's Outwash Plain Pondshore is the only known natural community of its type in Vermont; deep, highly porous glacio-fluvial surficial material causes great seasonal fluctuation of the water table, allowing the Outwash Plain Pondshore community to form on the seasonally exposed muddy to sandy shores (53). This natural community occurs along most edges of the pond, where the land is submerged in the spring and exposed in the summer. Deeper areas that remain exposed most of the time support aquatic bed vegetation.

### ***COMMUNITY ASSEMBLAGE/WETLAND COMPLEX***

Lily Pond is host to at least three wetland community types: Outwash Plain Pondshore, a small area of floodplain forest, and aquatic bed vegetation (1). It has high plant diversity and provides habitat for many rare plant and animal species, as described in the next section. See Exemplary Natural Communities section above for more information.

### ***RARE, THREATENED, OR ENDANGERED SPECIES HABITAT***

There are several occurrences of rare/threatened/endangered plants and animals in this wetland. Specific species are not listed for protection purposes. See Rare, Threatened, or Endangered Species section above.

The rare, threatened, and endangered species recorded by the Natural Heritage Inventory are noted in the included Element Occurrences (2-44) and the NHI database.

### ***UNDISTURBED CONDITION***

Lily Pond scored high on the Vermont Rapid Assessment (VRAM), with a total score of 88 out of 100 (1). Condition scored 78%, indicating there is some human disturbance affecting the site (1). Lily Pond scored a 5.44 using the Coefficient of Conservatism (CoC) – a metric ranging from 0 to 10 that uses the presence of plant species to evaluate wetland status – suggesting the wetland is in good to excellent condition near the plot location (1).

### ***CONNECTIVITY***

This wetland serves as a migratory stopover and potential waterfowl corridor as indicated by observations made through eBird (46).

### ***ATTACHMENTS:***

2022 Lily Pond Site Report. Vermont Wetlands Program.



## References

- (1) Vermont Wetlands Program. 2022 Lily Pond Site Report. September 7, 2022. Internal Report. Accessed 1/10/2024.
- (2) [Vermont Natural Heritage Inventory Element Occurrence 604](#). Accessed 1/10/2024.
- (3) [Vermont Natural Heritage Inventory Element Occurrence 1090](#). Accessed 1/10/2024.
- (4) [Vermont Natural Heritage Inventory Element Occurrence 3567](#). Accessed 1/24/2014.
- (5) [Vermont Natural Heritage Inventory Element Occurrence 4594](#). Accessed 1/10/2024.
- (6) [Vermont Natural Heritage Inventory Element Occurrence 4881](#). Accessed 1/10/2024.
- (7) [Vermont Natural Heritage Inventory Element Occurrence 5172](#). Accessed 1/10/2024.
- (8) [Vermont Natural Heritage Inventory Element Occurrence 5501](#). Accessed 1/10/2024.
- (9) [Vermont Natural Heritage Inventory Element Occurrence 6764](#). Accessed 1/10/2024.
- (10) [Vermont Natural Heritage Inventory Element Occurrence 7035](#). Accessed 1/24/2014.
- (11) [Vermont Natural Heritage Inventory Element Occurrence 8093](#). Accessed 1/10/2024.
- (12) [Vermont Natural Heritage Inventory Element Occurrence 8094](#). Accessed 1/24/2024.
- (13) [Vermont Natural Heritage Inventory Element Occurrence 8095](#). Accessed 1/10/2024.
- (14) [Vermont Natural Heritage Inventory Element Occurrence 8096](#). Accessed 1/10/2024.
- (15) [Vermont Natural Heritage Inventory Element Occurrence 8430](#). Accessed 1/24/2024.
- (16) [Vermont Natural Heritage Inventory Element Occurrence 9190](#). Accessed 1/24/2014.
- (17) [Vermont Natural Heritage Inventory Element Occurrence 9490](#). Accessed 1/10/2024.
- (18) [Vermont Natural Heritage Inventory Element Occurrence 10958](#). Accessed 1/24/2014.
- (19) [Vermont Natural Heritage Inventory Element Occurrence 33233](#). Accessed 1/10/2024.
- (20) [Vermont Natural Heritage Inventory Element Occurrence 34382](#). Accessed 1/24/2024.
- (21) [Vermont Natural Heritage Inventory Element Occurrence 34636](#). Accessed 1/24/2014.
- (22) [Vermont Natural Heritage Inventory Element Occurrence 34648](#). Accessed 1/24/2014.
- (23) [Vermont Natural Heritage Inventory Source Feature 3708](#). Accessed 1/24/2024.
- (24) [Vermont Natural Heritage Inventory Source Feature 9846](#). Accessed 1/24/2024.
- (25) [Vermont Natural Heritage Inventory Source Feature 11221](#). Accessed 1/24/2024.
- (26) [Vermont Natural Heritage Inventory Source Feature 16133](#). Accessed 1/24/2024.
- (27) [Vermont Natural Heritage Inventory Source Feature 16142](#). Accessed 1/24/2024.
- (28) [Vermont Natural Heritage Inventory Source Feature 17061](#). Accessed 1/24/2024.
- (29) [Vermont Natural Heritage Inventory Source Feature 17081](#). Accessed 1/24/2024.
- (30) [Vermont Natural Heritage Inventory Source Feature 17367](#). Accessed 1/24/2024.
- (31) [Vermont Natural Heritage Inventory Source Feature 17372](#). Accessed 1/24/2024.
- (32) [Vermont Natural Heritage Inventory Source Feature 17402](#). Accessed 1/24/2024.
- (33) [Vermont Natural Heritage Inventory Source Feature 19934](#). Accessed 1/24/2024.
- (34) [Vermont Natural Heritage Inventory Source Feature 27248](#). Accessed 1/24/2024.
- (35) [Vermont Natural Heritage Inventory Source Feature 29422](#). Accessed 1/24/2024.
- (36) [Vermont Natural Heritage Inventory Source Feature 29423](#). Accessed 1/24/2024.
- (37) [Vermont Natural Heritage Inventory Source Feature 29426](#). Accessed 1/24/2024.
- (38) [Vermont Natural Heritage Inventory Source Feature 29432](#). Accessed 1/24/2024.
- (39) [Vermont Natural Heritage Inventory Source Feature 31203](#). Accessed 1/24/2024.

- (40) [Vermont Natural Heritage Inventory Source Feature 33261](#). Accessed 1/24/2024.
- (41) [Vermont Natural Heritage Inventory Source Feature 33279](#). Accessed 1/24/2024.
- (42) [Vermont Natural Heritage Inventory Source Feature 33374](#). Accessed 1/24/2024.
- (43) [Vermont Natural Heritage Inventory Source Feature 33376](#). Accessed 1/24/2024.
- (44) [Vermont Natural Heritage Inventory Source Feature 33381](#). Accessed 1/24/2024.
- (45) [iNaturalist – Lily Pond Area](#). Accessed 1/24/2024.
- (46) [eBird – Lily Pond](#). Accessed 1/10/2024.
- (47) Natural Resources Conservation Service. [Web Soil Survey](#). Accessed 1/10/2024.
- (48) [NatureServe Biotics Help Page](#). Accessed 1/24/2024.
- (49) [Vermont Fish and Wildlife Department, Natural Heritage Inventory. Synonymy of Vermont Natural Community Types with National Vegetation Classification Associations](#). Accessed 1/24/2014/
- (50) [Eastern Brook Trout Joint Venture – Native Eastern Brook Trout Population Status, September 2015](#). Accessed 1/24/2024.
- (51) [Vernon, Vermont Nature & Recreation](#). Accessed 1/24/20124.
- (52) Thompson, E., Eric Sorenson, and Robert Zaino. 2019. Wetland, Woodland, Wildland, a Guide to the Natural Communities of Vermont, 2<sup>nd</sup> Edition. Co-published by The Vermont Fish & Wildlife Department, The Nature Conservancy, and Vermont Land Trust

**SITE NAME:** Lily Pond

**LOCATION:** On the north end of the western peninsula of Lily Pond in Vernon, on an area where the water level draws down in summer. 42.736637, -72.510178

**SURVEY DATE:** September 7, 2022.

**OVERVIEW:**

Lily Pond is a pond in Vermont which is fed only by intermittent streams, precipitation, and sheet flow. It occurs on well-drained glacial outwash, so the water level drops significantly in summer. This pond is unique in Vermont but similar to other ponds which occur in southern New England. As such it supports the only Outwash Plain Pondshore wetland type in Vermont. This natural community occurs along most edges of this pond, where the land is submerged in spring and exposed in summer. Deeper areas that remain exposed most of the time support aquatic bed vegetation such as lily pads which give the pond its name. There is also an interesting area that resembles Lakeside Floodplain Forest near the boat launch. Lakeside Floodplain Forest is only known to occur along Lakes Champlain and Memphremagog, so this may be an interesting outlier as well.

The area to the west and south of the lake, which includes most of the lake's watershed, consists of a slope with forest that has recently experienced some logging. There appears to be additional wetland in the hollows here. To the north and east are cleared fields and houses. A handful of small intermittent streams feed into the pond, one of which has some beaver activity near the pond as well. The outlet is also intermittent and only flows when the pond is full. It has been altered and straightened and now functions as a ditch rather than a natural brook.

**SPECIES DIVERSITY:**

A 5 by 20 meter plot was conducted in the unique Outwash Plain Pondshore natural community at the northern tip of a peninsula into the lake. The most abundant species here were the herbaceous species slender fimbry (*Fimbristylis autumnalis*), golden hedge-hyssop (*Gratiola aurea*), and dwarf St. John's wort (*Hypericum mutilum*). Marsh mermaid weed (*Prosperpinaca palustris*) and fragrant water lily (*Nymphaea odorata*) were also present, along with several other species comprising 20 species total. Nearly all were herbaceous species but there were a few shrubs hanging in, including buttonbush (*Cephalanthus occidentalis*) and highbush blueberry (*Vaccinium corymbosum*).

This site has very high levels of rare species, with 22 species tracked by the Natural Heritage Inventory as rare and 19 more as uncommon. Rare species in the plot included the slender fimbry and mermaid weed.

The aquatic bed portions of the pond supported abundant white waterlily (*Nymphaea odorata*) with rare humped bladderwort (*Utricularia gibba*) and watershield (*Brasenia schreberi*) also present. There were small floating mats with capitate spikerush (*Eleocharis flavescens* var. *olivacea*) and common pipewort (*Eriocaulon aquaticum*). The small floodplain area had an overstory of silver maple (*Acer saccharinum*) with a sparse understory. Some patches of buttonbush also occurred along the pond edge.

**SOILS:**

This site had negligible soil formation with just 2 inches of muck over glacial till. Because it dries out every year, the shore is not conducive to organic soil accumulation, and wave action and ice scour likely are also a factor in spring. Deeper parts of the pond likely have much more muck and silt and some small floating peat mats in the pond were observed as well.

**WATER QUALITY and HYDROLOGY:**

Water samples were collected from the pond near the plot location. The water was notable in being very acidic with very little dissolved substances – pH of 5.4 and conductivity of just 17.5. These are similar readings to those observed in bogs and likely indicate the water in the pond primarily originates from direct precipitation and sheet flow from nearby. The sampling did occur not long after a heavy rain event, which may have influenced results as well. Still, this is an acidic-water site. The pond probably does not develop bog vegetation on its edges due to the dramatic changes in water level allowing for peat to dry out and decompose on the pond edges. Other than this, there was little notable about the pond water chemistry. The nitrogen and phosphorous levels were somewhat elevated, perhaps thanks to the small portion of the watershed east and north of the pond which has farm fields and lawns draining in. Other substances were only detected at very low to undetectable levels.

The hydrology of the site is primarily dominated by precipitation and sheet flow inputs as mentioned above, plus storm event contributions from ‘flashy’ intermediate streams immediately after heavy rain or snowmelt. The watershed is small and most of the wetlands to the west appear to drain to the north and not into the pond, but a steep slope to the south of the pond drains directly into the pond. There is also a smaller depression wetland to the northwest that is connected to Lily Pond by a ditch; this may contribute water at times. The pond is also drained out through a ditch that only supports flow when the pond is full, which is probably only during the spring and fall or periods of heavy rains. The pond itself holds water in its deeper portions throughout the year so in that sense there is also perennial water onsite.

**FUNCTIONS AND VALUES PRESENT:**

- Water Storage for Flood Water and Storm Runoff
- Surface and Ground Water Protection
- Fish Habitat
- Wildlife Habitat
- Exemplary Natural Communities

- Rare, Threatened or Endangered Species
- Recreational
- Education
- Open Space
- Erosion Control through Binding and Stabilizing the Soil

**ANTHROPOGENIC DISTURBANCE:**

Lily Pond is near a village center and agricultural areas, so has significant human disturbance despite its ecological resilience. Hydrologic disturbance is significant, with a ditch at the seasonal outlet as well as the largest inlet. Habitat disturbance includes invasive species, lack of

buffer along the eastern side, and runoff likely contaminated with nutrients and salt from nearby developed and agricultural areas.

**BIOCRITERIA ANALYSIS:**

VRAM, the Vermont Rapid Assessment Method, is a method of rapidly assessing both condition and function of a wetland. This site received a total score of 88, which is an excellent score. Condition metrics scored 78% indicating there is some human disturbance affecting the site, but function related metrics scored very high at 68. This indicates that while the site is not undisturbed it is of very high importance for wetland function and value.

The Coefficient of Conservation (CoC) is a metric that uses the presence and abundance of plant species to evaluate wetland status. This site received a score of 5.44. When weighted to include relative species cover the score is a bit lower at 4.73. These numbers suggest the wetland at the plot location is in good to excellent condition.

Site	VRAM Score	CoC
Outwash Plain Pondshore	88	5.44

**MANAGEMENT RECOMMENDATIONS:**

This site is in good condition, but there are some edge effects impacting the site. The vegetated buffer on the north and east sides of the pond is very narrow with farm fields beyond. Expanding the buffer could help protect the wetland. Likewise, avoiding logging within 50 feet of the west or south shore of the pond would also be helpful. If lawns in the watershed are not fertilized or better yet are restored to native vegetation this would be helpful as well. Plugging or altering the ditches would probably not be helpful at this point as it would alter the hydrology of the site further. However, no further ditching should occur.



Photos:



**Figure 1: dense aquatic bed vegetation on Lily Pond with Outwash Plain Pondshore also visible.**



**Figure 2: small Lakeshore Floodplain Forest.**

MAP



**Appendix A: Soil Data**  
**Soil Table -**

Depth to Lower Boundary ( <i>in</i> )	Texture	Notes
2	Muck	
3+	Till	