Vermont Land Trust
CONSERVING LAND FOR THE FUTURE OF VERMONT

VERNAL POOL REPORT: ***Boyce Hill Town Forest, Fayston***
Caitlin Cusack, Forester

Visit Date: May 6, 2020
Report Date: October 27, 2020; Updated May 5, 2021

Two vernal pools were discovered by Fayston Conservation Commission member Corrie Miller in the spring of 2020. I visited the pools in May to document them. While neither pool met Vermont standards for statewide significance in terms of size, amphibian presence, landscape context, and physical quality, any size natural vernal pool provides important habitat functions for amphibians and other wildlife. Vernal pools are vital breeding areas for a number of amphibians, such as mole salamanders and wood frogs, whose numbers are declining worldwide in large part because of habitat alteration. Protection of these special places and the forests surrounding them will also contribute to the overall diversity of the forest, and the functioning of the forested ecosystem. For example, amphibians and invertebrates that breed in vernal pools provide a significant amount of food for snakes, turtles, birds and other small mammals.

Figure 2. Vernal pool #1 located below Snake Rock. Photo by Corrie Miller, April 15, 2020

Vernal Pool #1

Figure 1. Vernal pool #1 Photo by Caitlin Cusack, May 6, 2020

As shown on the map, this small, 10’ by 10’, pool is about 200’ uphill from the parking area and is situated just below the glacial erratic known locally as Snake Rock. This is an isolated non-forested depression with no inlet or outlet. At the time of my visit it was about knee deep with water. I counted one wood frog egg mass that had already hatched. The habitat in the 100’ radius surrounding the pool is an open/mowed field with few scattered mature trees. There are some shrubs/small trees less than 6’ tall on the edge of the pool but they don’t provide much shading.

Vernal Pool #2

The second pool is located just below the pond and is larger (approximately 25’ by 12’) and more productive than the one described above. It’s fed by a seep uphill of the pool; an ephemeral inlet and outlet were observed. At the time of my visit the pond was about 2-3’ deep. I counted about 17 wood frog egg masses and 2 spotted salamander egg masses. The pool was also teaming with tadpoles as some of the wood frogs had hatched, which made it difficult to count discrete masses. I did observe some siltation near the inlet as well as a small patch of *Phragmites* about 50’ uphill. About 25% of the area surrounding the pool is open, 50% is early successional forest with species such as grey birch, yellow birch, aspen, ash and red maple. The remaining 25% of the area surrounding the pool is a mixture of mature hardwoods, hemlock and spruce.

Figure 3. Vernal pool #2. Photo by Corrie Miller, April 24, 2020

Recommendations

The historic land clearing and maintenance of much of the property in an open condition has impacted the quality of the habitat surrounding the two vernal pools. I calculated the quality of each vernal pool using Vermont Fish & Wildlife Department Nongame and Natural Heritage Program’s protocol which ranks the quality of natural communities and animal or plant populations on a scale of A-D, A being highest. Both vernal pools were determined to be C—fair viability and integrity. As mentioned above, neither meet criteria for statewide significance.

Figure 4. Spotted salamander eggs in Vernal pool #2. Photo by Caitlin Cusack, May 6, 2020

The area used by an amphibian population can be represented by three management zones described below.

1. The breeding pool—this area constitutes the pool depression measured at high water.

Most vernal pools dry up after 2-3 months but some may retain water in wet years.

VT Fish and Wildlife Department (VTFWD) Recommendation: leave undisturbed, with no cutting, heavy equipment, skidding, storage of slash or other woody debris, or sedimentation within these depressions during any season.

The sedimentation observed at the inlet to Vernal Pool #2 should be investigated further and controlled as sediment can smother developing embryos. Given the recreational use of the property there is also a risk of off-leash dogs running through both pools and disturbing developing embryos and larvae during breeding season. Educating users about keeping dogs out of vernal pools will be important to the success of the vernal pool species.

2. A zone that extends to 100 feet around the pool (labeled "primary zone" on the attached map)—Some call this area the life zone as it is critical for providing shade and maintaining cool, oxygenated water as well as providing litter for the pool ecosystem and upland habitat for pool-breeding amphibians.

   VTFWD Recommendation: Avoid land clearing, development, including roads and driveways, use of pesticides, herbicides [or if you do make sure it's approved for use in wetlands] *or fertilizers, and barriers to amphibian movement. Consider no cutting of vegetation with the exception of invasive plants.*

   Given the open nature around both vernal pools any restoration of vegetation and coarse woody material (aka downed logs) would greatly improve the habitat.

3. A third zone (labeled "secondary zone" on the attached map) that extends to 600 feet from the pool edge. Research indicates that some salamanders will travel 400 feet or more and wood frogs will disperse ¾ mile from their breeding pools. Shade, leaf litter and woody debris are all important habitat features for amphibians that need among other things moist conditions to survive.

   VTFWD Recommendation: to provide adequate amphibian habitat and canopy cover, practice uneven-age forest management. To provide adequate shading, a minimum of 60 percent of the canopy cover composed of trees at least 25 feet tall should remain intact. Try to maintain a moist forest floor with deep leaf litter and abundant coarse woody debris of various sizes. Timber harvesting should not happen during the amphibian movement period in early spring and preferably should be done on frozen ground. Avoid any activities that direct water away from a breeding pool, as this reduces the amount of water held in the depression and increases the chance that the pool will dry before amphibian larvae complete their development. Do not direct additional runoff into a breeding pool from outside its natural basin. This can change the hydrology of the pool and introduce pollutants and sediments, both of which can kill eggs and developing larvae.

   This zone covers a large part of the Boyce Hill Town Forest. There are certain features, such as the pond, that are important recreational features. While the management of this

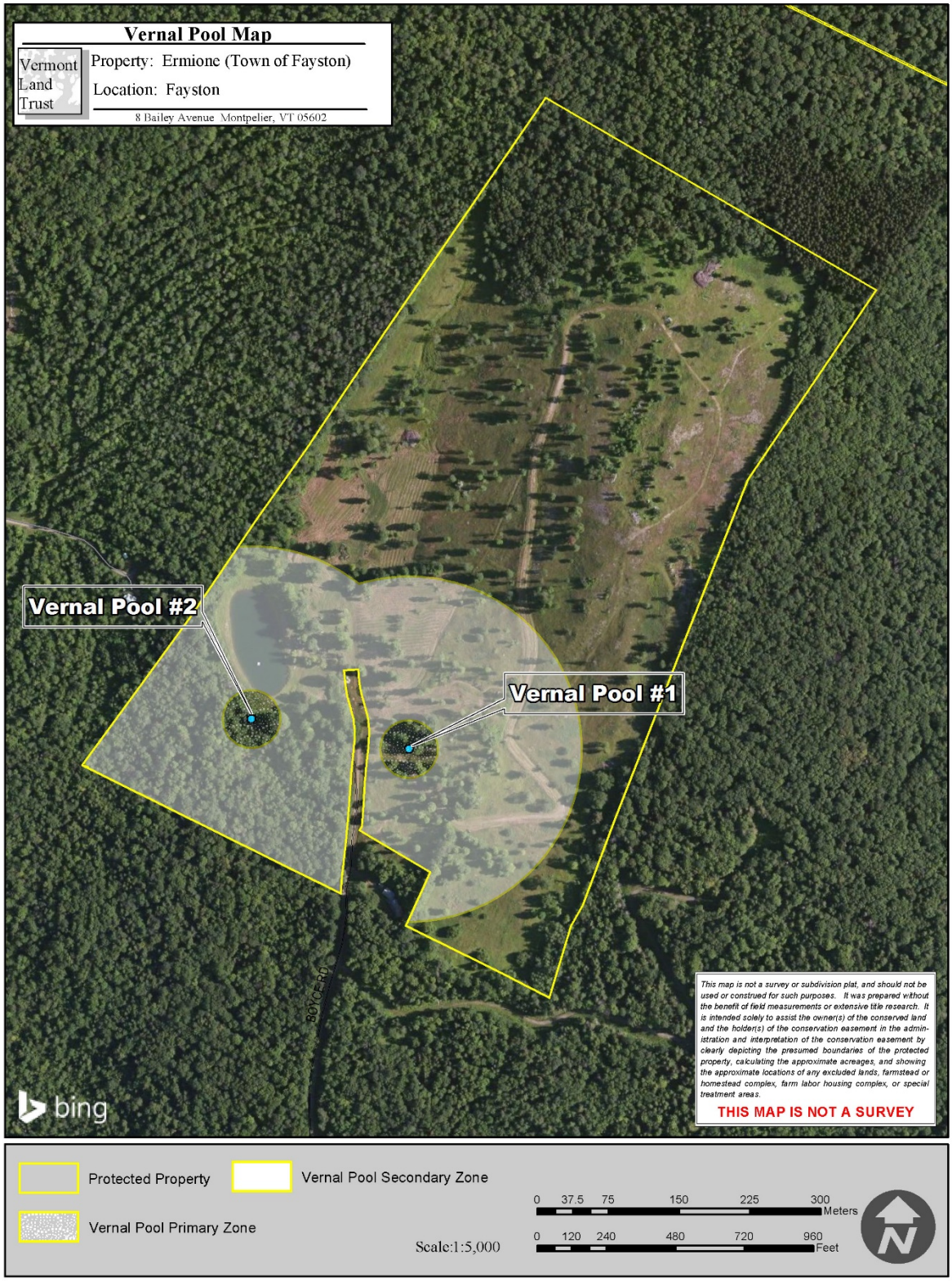
zone needs to be balanced with other management objectives, any restoration of vegetation and coarse woody material would greatly improve the habitat.

It's also important to note that vernal pools are Class II wetlands and thus they and a 50' vegetated buffer surrounding them fall under the jurisdiction of and are protected by the State of Vermont under the Vermont Wetland Rules. Certain activities proposed within 50 feet of a class II wetland may require a permit. While I recommend allowing a 100' buffer around each of the pools to revert to forest it will be important to check with the VT Department of Environmental Conservation wetlands staff to make sure that both of these vernal pools would be classified as class II wetlands and that management activities within 50' of the vernal pools is in compliance with the Vermont Wetlands Rules. It is my understanding that if the management within the buffer (in this case mowing) has occurred continuously since before 1990 when the VT Wetland Rules went into effect then, while it's recommended, the town would not necessarily be required to let this 50' buffer revert to forest.

References

Metropolitan Conservation Alliance. 2004. Forestry Habitat Management Guidelines for Vernal Pool Wildlife. Available at: https://www.maineaudubon.org/wp-content/uploads/2017/03/Forestry-Habitat-Management-Guidelines-for-Vernal-Pool-Wildl.pdf

VT Fish and Wildlife Department. 2014. Wildlife Habitat Management for Lands in Vermont – A Landowners Guide, Part 4: Wetland, Pond, and Riparian Area Habitat Management. Available at:https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/LandownersGuide/12.Wetlands.pdf


Vernal Pool Map
Vermont Land Trust
Property: Ermione (Town of Fayston)
Location: Fayston
8 Bailey Avenue Montpelier, VT 05602
Vernal Pool #2
Vernal Pool #1
BOYCE RD
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This map is not a survey or subdivision plat, and should not be used or construed for such purposes. It was prepared without the benefit of field measurements or extensive title research. It is intended solely to assist the owner(s) of the conserved land and the holder(s) of the conservation easement in the administration and interpretation of the conservation easement by clearly depicting the presumed boundaries of the protected property, calculating the approximate acreages, and showing the approximate locations of any excluded lands, farmstead or homestead complex, farm labor housing complex, or special treatment areas.
THIS MAP IS NOT A SURVEY
Protected Property
Vernal Pool Secondary Zone
Vernal Pool Primary Zone
Scale:1:5,000
0 37.5 75 150 225 300 Meters
0 120 240 480 720 960 Feet
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