

Bare Hill Pond Watershed Management Committee
Town of Harvard
Harvard, MA 01451

August 5, 2008

Conservation Commission
Town of Harvard
Town Hall
Harvard, MA 01451

Re: Proposed Fall 2008 Drawdown and 2008 Report

Dear Commissioners:

On behalf of the Bare Hill Pond Watershed Management Committee, we are submitting our annual data collected since August 2007. We have separately submitted a Notice of Intent that seeks identical authority to proceed with drawdowns subject to an identical order of conditions to those set forth in the 2005 NOI.

Our proposal will be to proceed this fall with a gravity drawdown of up to 3.5 feet. We are not seeking to pump to 5 feet because of 2 years of successful control of milfoil and fanwort. We are seeking authority to proceed with a gravity drawdown for two reasons. First, we would like to minimize the habitat variation between the "on" years and the "off" years. If we were to do nothing this year, we would restart with a five foot increment next year. The rationale for the off-years was to avoid establishment of drawdown resistant plants in the drawdown zone. Our observations indicate that the plants in the 0-3.5 foot zone are now mostly native grasses and cat tails as well as the restoration of rocky shoreline, so this risk appears to be less of a concern. Second, we would like to continue with a second demonstration project for removal of peat at the beach area in the drawdown zone, subject to second NOI, and a gravity drawdown will allow that project to be considered.

As noted below in the monitoring results, we are very pleased with the progress of the project. Since last year, we saw another increase in the diversity of the plant life in the pond. In the Clapps Brook Area in particular, the shoreline cat tails have become a dominate species again along the shore with native grasses, waterlilies. The milfoil and fanwort are largely controlled in outer Clapps Brook (formerly a location with the highest concentration and density), as well as in Great South Bay and around the islands between the dam and the beach. Based on our observations, millfoil and fanwort can still be found in scattered, but dense stands in the 5-7 foot zones around the pond but not in continuous growth. General consensus is that it is much less prevalent and native bottom growing species can be observed in much of the drawdown zone. Presumably they are now better able to compete with the invasive species.

Independent of the drawdown, harvesting and handpulling (coupled with a surface fence have successfully limited the waterchestnut to inner Clapps Brook and this year volunteers were able to clear the shoreline in Clapps Brook almost entirely allowing Rick Dickson to harvest

mechanically the center area. A DVD showing the activity will be submitted. Coupled with the drawdown, significant re-emergence of grasses and reed type plants along the shoreline has occurred. In other respects, this year's monitoring results are consistent with our observations over the past and continue to support the efficacy of utilizing drawdowns.

We have also continued our volunteer wildlife monitoring efforts. We did, as discussed with the Conservation Commission last November, hold our drawdown to five feet to ensure that the mussel population was retained. I have conducted 2 turtle counts this year and the results were not similar to prior years see only several turtles in an hour rather than 40-50 in the Clapps Brook shoreline area. I generally see turtles when I am paddling around the Pond and I think the poor count is the result of the method adopted for the count a few years ago. The method was to count turtles along the shoreline (mostly sunning on logs and rocks) in a one hour period. With the re-emergence of the significant growth of shoreline grasses and cat tails, as well and the restoration of the lily pads in those areas, sunning locations are no longer visible from a canoe or Kayak and I believe the turtles have moved elsewhere. Rick Dicksen says he is regularly removing (without harm) turtles from the conveyor on the harvester and the regular observation of turtles at other times, suggests that we need to pick another methodology. I have regularly seen water snakes and this year observed several juveniles in the water (they are interesting because they are not black and have a brown diamond pattern suggestive of a rattlesnake).

We also continued to take secci disk readings to evaluate turbidity. The results are consistent with last year ranging from 5.5 feet on windy days or days with high boating activity to 6.0 feet early in the morning when there is light wind and traffic on the pond. On several mornings there was 6.5 feet which is more than in prior years

Beaver activity was continued his winter during the drawdown in the Pond and in the downstream wetlands. Fox activity continues to be active in the early morning hours.

Frog counts continued this year under the leadership of Jeff Ritter. Spring peepers, wood frogs, pickerel frogs and other species were heard and the counts were higher than last year. A copy of his report is attached.

The Park and Recreation Commission gave 3 fishing derbies permits this year and there results were all positive. I spoke with the members of one derby and they indicated that the fish population in Bare Hill Pond is, from their perspective thriving. They prefer to fish here over other ponds. I have not yet received bird data from Susan Hardy, but she regularly conducts bird counts and I will follow up with her.

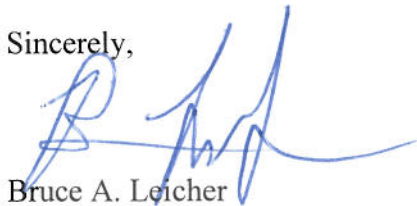
Copies of the 100' segments of shoreline are also submitted on a cd for your review at the sites established in 2003. The photos were taken the week the drawdown was achieved. When one compares the photos to last year, one does not see much change.

Taking this into account, we propose the following plan for the Fall 2008 gravity drawdown to be conducted under the terms of the Order of Conditions to be issued:

1. Initiate the gravity drawdown the week of September 21 and limit the drawdown to 3.5 feet and the rate of drawdown to 2" per day per the Order of Conditions. Per the Order of Conditions, stop the drawdown process prior to the first freeze. Prior experience indicates that this will occur well before the first freeze.
2. Initiate the Refill on or before February 1, 2007. Our objective is to bring the Pond to the level of the gravity drawdown on or before the date we have historically initiated the gravity drawdown refill. The prior to deep drawdowns both had more than sufficient time to refill when started at this time.

We appreciate the time the Commission has take, and the effort made to understand, and help manage the project. We look forward to the meeting on August 21 and will do our best to answer and address your questions.

Sincerely,



Bruce A. Leicher
Chair, Bare Hill Pond Watershed Management Committee

Cc: Conservation Commission Members
Pond Committee Members
Selectmen

2007-2008 Drawdown Data

The drawdown and the refill were measured weekly from the top surface of the dam to the surface of the water to measure the rate of decline or rise in water level. The following table shows the data collected:

Date	Distance from top surface of dam
9/16	26" (low starting point – normal is 20-22")
9/20	26" Initiate Drawdown
9/21	27"
9/23	29"
9/29	38"
9/30	40"
10/2	45"
10/6	50" Start Pump at 26hz (2/3 of day)
10/7	52"
10/10	56"
10/14	60"
10/16	63"
10/19	63" Increase to 40hz on pump (full day)
10/21	66"
10/24	69"
10/27	78" slow pump to 37hz
11/1	80" complete
11/3	80" through 1/11/08
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1/12/08	80" Pump Stopped
1/19/08	75" Unable to repair pump
1/26	69"
2/2	63"
2/7	61"
2/10	47" significant rain and snowmelt
2/16	35"
2/23	27"
3/2	20" normal height
3/8	20" significant rain (2 boards removed to prevent overfill and then replaced)

Summary of 2008 Bare Hill Pond Watershed Amphibian Monitoring Program

In the spring and early summer of 2008, three amphibian monitoring field studies were conducted, on the evenings of April 13, May 12, and June 1, 2008. During each of these evenings, two teams of two trained monitors were sent into the field according to a protocol used for the past several years by the Watershed Management Committee to monitor amphibian activity on the perimeter of the Pond. The teams cover specific locations, particular routes, and have been trained in the correct identification of amphibian species according to their mating calls.

In general, the number and variety of amphibians present in the watershed, and specifically, directly adjacent to the Pond, are healthy in both number and variety. Specific findings of the field observers:

On April 13, 2008 conditions were mild, temperatures above freezing (ambient air temperature was 41 to 45 degrees Fahrenheit as measured at four sites), there had been heavy rain during the day, but in the evening the skies were clear. Wind was steady from the west at 1 mph (just enough to note). At all monitoring locations, Spring Peepers were chorusing too heavily to count, indicating a very healthy population. Of note, however, were the discrete identifiable calls of a limited number (2-5) of Pickerel Frogs, which is the first time in the past several years that they have been present and identifiable this early in the season. Numbers were not large, but clearly, their presence is a sign of improved ecological health or perhaps, a more active population, than in years past.

On May 12, 2008 weather conditions were cool, temperature was steady at 49 degrees, and the air was moderately dry, with no wind. Again teams at four sites counted the number and type of calls. Discrete numbers of Spring Peepers were counted at all locations. No other calls were observed. It is presumed that the ambient air temperature, cool for mid-May, could have had an effect on other species, inclining them to silence. This is evidenced by the fact that even the number of Spring Peepers observed was diminished.

On June 1st, after a light rain during the day the conditions were almost windless (less than 1 mph wind out of the WNW) but amphibians were active. Peepers were counted in “almost” chorus mode. Notable also, were a countable number of Wood Frogs, calling and replying, in all four locations. Finally, there was one American Toad call counted, and possibly, although not fully ascertained, one Pickerel Frog.

In general, we observe the amount and type of amphibian activity on the pond to be in line with previous yearly observations, with possibly a slight increase in the amount of activity this year compared with years in the recent past. Of special note is the countable number of Wood Frogs noted on the last evening. This species may be staging a come-back, if the number of calls observed this year is indication of a larger population trend. Observations of greater Wood Frog

activity in the coming year would further reinforce this hypothesis, and we will pay close attention in the next annual cycle to determine whether this hypothesis is true or not.

Taken as a whole, this year's observations suggest that the environment for the amphibian population remains stable or perhaps slightly improved over previous seasons. The type, number, and the activity level of amphibians seem to indicate a healthy local ecology. The Committee will continue to observe the protocols of the amphibian monitoring process in coming seasons to develop a continuous data series that can be used as one indicator of the long term environmental health of the watershed, as well as to provide evidence of the long term effects of planned pond draw-downs on amphibian populations.

Conservation Commission

August 5, 2008

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100' Segment Photos

Attached is the Map of the 100' Segment Sites established in 2003. The photos are submitted on a cd rom

November 16, 2003

WILDLIFE, HABITAT AND VEGETATIVE ASSESSMENT
OF BARE HILL POND, HARVARD (MA)

ENSR
ENVIRONMENTAL
NATURAL SCIENCE
RESEARCH

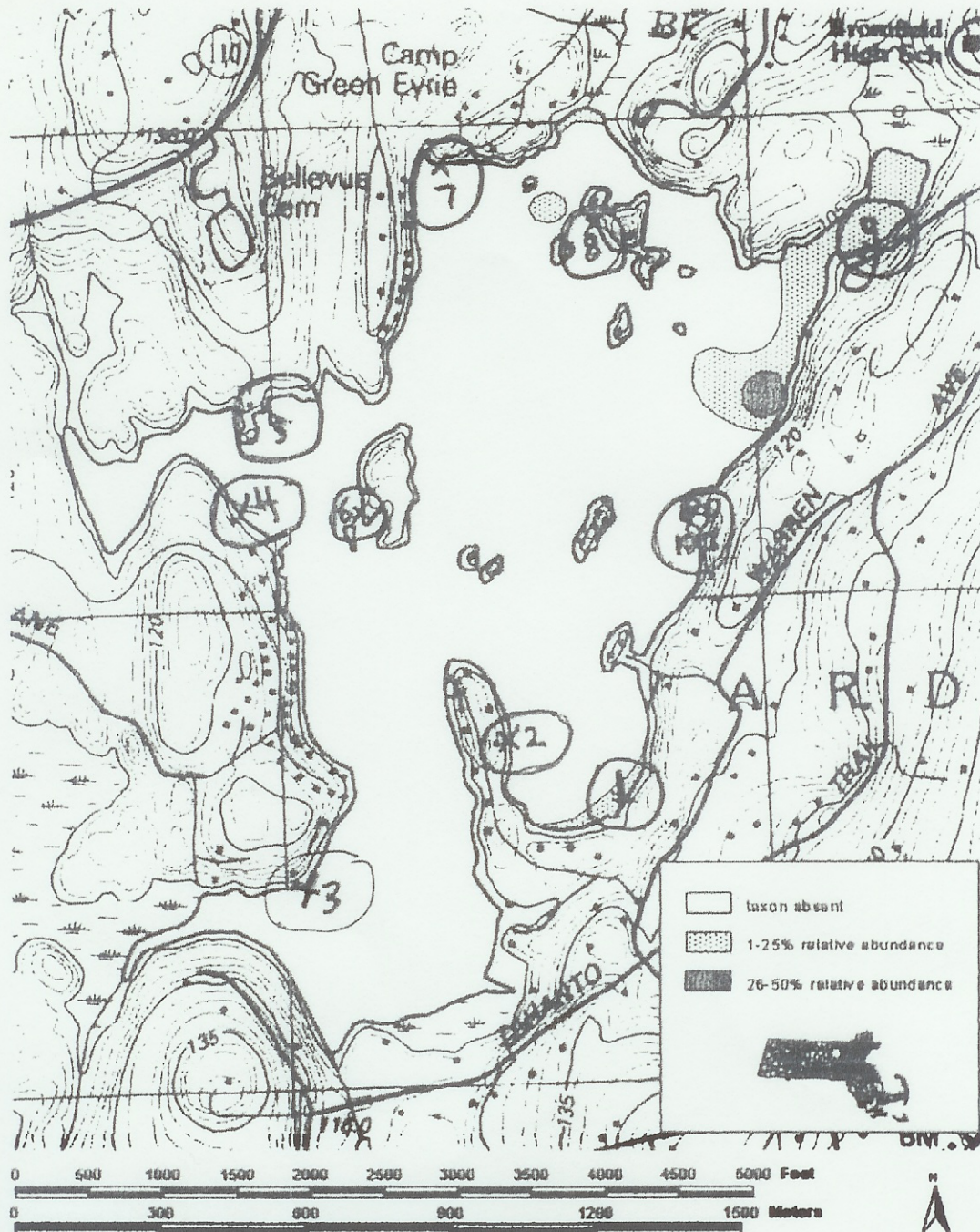


Figure 5. Distribution and relative abundance of fanwort (*Cabomba caroliniana*) in Bare Hill Pond in October 2001, from data in Appendix A.

Site 1



November 2007

100 Foot Photos

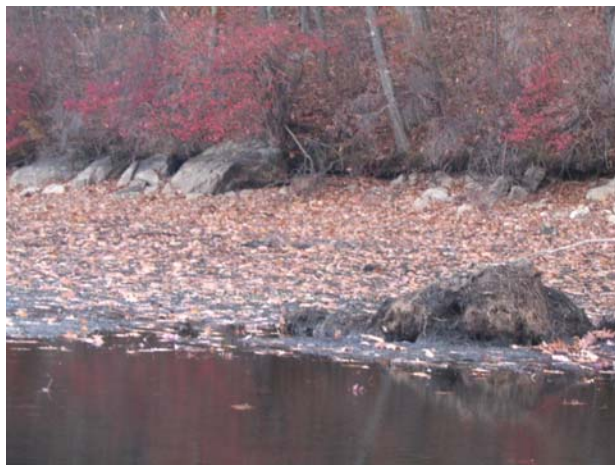
Site 2



November 2007

100 Foot Photos

Site 3



November 2007

100 Foot Photos

Site 4



November 2007

100 Foot Photos

Site 5



November 2007

100 Foot Photos

Site 6



November 2007

100 Foot Photos

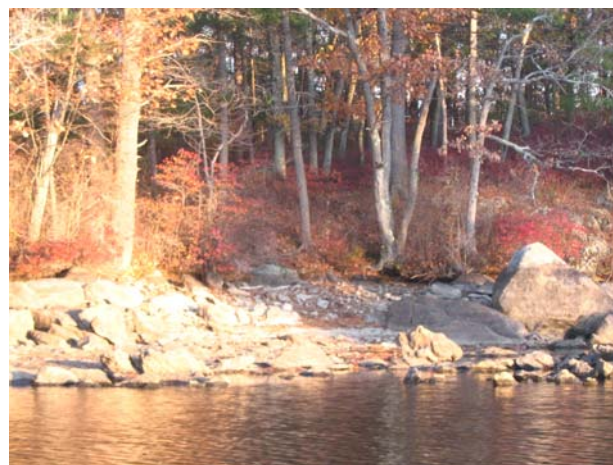
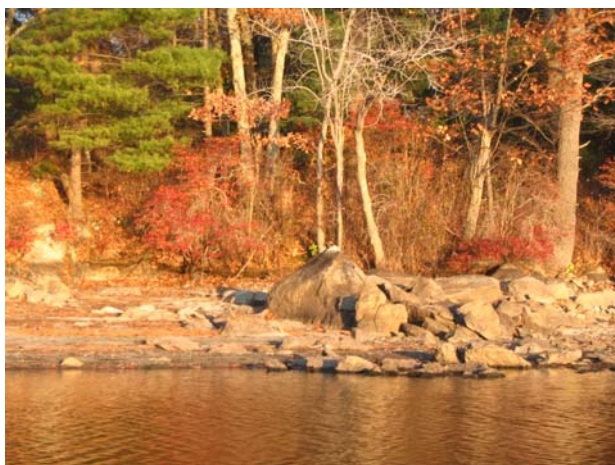
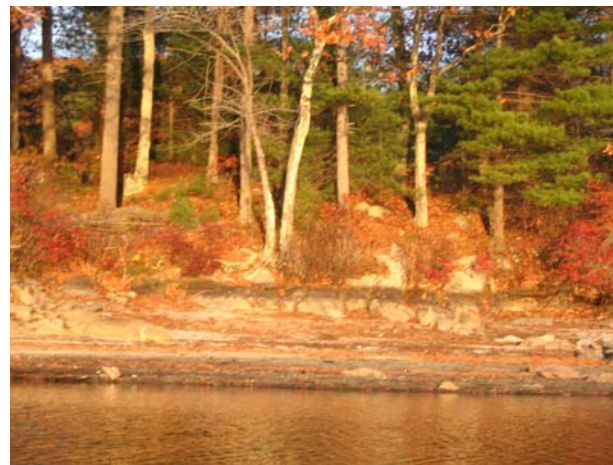
Site 7



November 2007

100 Foot Photos

Site 8



November 2007

100 Foot Photos

Site 9

- Pictures did not process properly

Site 10



November 2007

100 Foot Photos