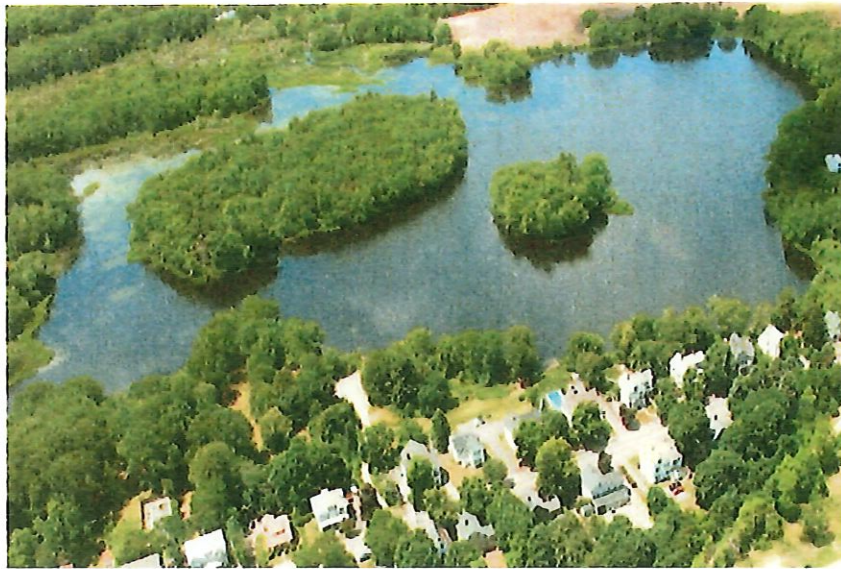


# Warner's Pond

*A Community Asset*



## **Aerial View – 2004**

Bordered by Commonwealth Avenue, Laws Brook and Wright Roads  
Concord, MA

Sponsored by the  
**Warner's Pond Stewardship Committee**  
Established 1/14/2004  
Working in Conjunction with the  
Town of Concord  
Natural Resources Commission  
Division of Natural Resources

## **Warner's Pond Stewardship Committee**

Katie Holden – Concord Natural Resources Division  
Al Easterday – Liaison (Natural Resources Commission)  
Charles Simpson – Co-Chairperson  
Joanne Loynd – Co-Chairperson  
Mark & Enid Boasberg  
Ruth Gerow  
Dorothy Higgins  
David Lange  
Bob & Maureen Swanson  
Doug & Kansas Wight

### **Contact information for any additional questions or offers:**

Charles Simpson – 978-369-3499  
Joanne Loynd – 978-369-7944  
Katie Holden – 978-318-3285

If you care to support this project and the Warner's Pond Stewardship Committee with your presence, expertise or a monetary donation, we welcome you.

# Brochure of Warner's Pond

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## INTRODUCTION



The ponds, rivers, and tributaries in Concord are one of our many valuable assets. Warner's Pond has been an intricate source of resources and pleasure since its origin in the mid 1800's. Warner's has offered the public a fishing spot, a place to enjoy wildlife, boating, picnicking, and a host of other useful activities.

This brochure is an effort to introduce Warner's Pond to people who are not aware of this rich gem, or its location and history. In addition, this brochure will bring optimism to those who have lived near this pond. The history, current studies and analysis on the present state of the pond and a proposed plan to move forward with restoration and maintain Warner Pond's ecological health has been gathered from the memories of the public, Concord Natural Resources Commission and generous contributors in the Town.

As caretakers of this natural resource, we have a responsibility to understand how to address aquatic invasive weeds and overgrowth. A plan can then be developed for the maintenance of all our water resources and conservation land so many generations can continue to reap benefits from them.

An Excerpt from **Henry David Thoreau's Journal**, which was published in **The Concord Chronicle – 1865-1899**, Authored by Lawrence Easton Richardson:

“Dec. 16. Last Sunday, on the 14<sup>th</sup>, I walked on Loring's Pond to three or four islands there which I had never visited, not having a boat in the summer. On one containing an acre or two, I found a low, branching shrub frozen into the edge of the ice, with a fine spicy scent somewhat like sweet fern and a handsome imbricate bud. When I rubbed the dry-looking fruit in my hands, it felt greasy and stained them a permanent yellow, which I could not wash out; it lasted several days, and my fingers smelled medicinal. I conclude that it is sweetgale, and we named the island Myrica Island.

Footnote: Excerpt from **“A Guided Walking Tour of West Concord”**  
– Authored by the Concord Historical Commission, in 1994:

“Warner's Pond was earlier called Loring Pond. David Loring, originally of Concord, N.H., purchased the water rights in 1817. He then established a successful lead pipe company called the Loring Lead Works where the Warner's Pond Dam exists today. Eventually, his business met with too much competition and he started crafting wooden ware (bowls, buckets, pails, etc.). He eventually sold the business to Ralph Warner, in 1857, who renamed it the Warner Pail Factory. The bridge over the brook on Commonwealth Avenue, near the dam, is known as the Pail Factory Bridge.”

## **Warner's Pond Stewardship Committee Mission Statement and Goals**

### **Mission Statement:**

As an appointed subcommittee of the Concord Natural Resources Commission, and working in conjunction with the Concord Natural Resources Administrator, the mission of the Warner's Pond Stewardship Committee shall be:

- To protect, preserve, and enhance Warner's Pond and its adjacent wetlands and habitat through responsible management.
- To raise awareness of the unique character of this Great Pond within the community and its importance within and as a part of the Assabet River watershed.
- To promote and encourage active citizen stewardship of this pond in support of the management of the pond to enhance ecological health, increased opportunities for passive recreation (canoeing, bird watching, ice skating, fishing, etc.) by citizens, and the conservation goals of the Natural Resources Commission.

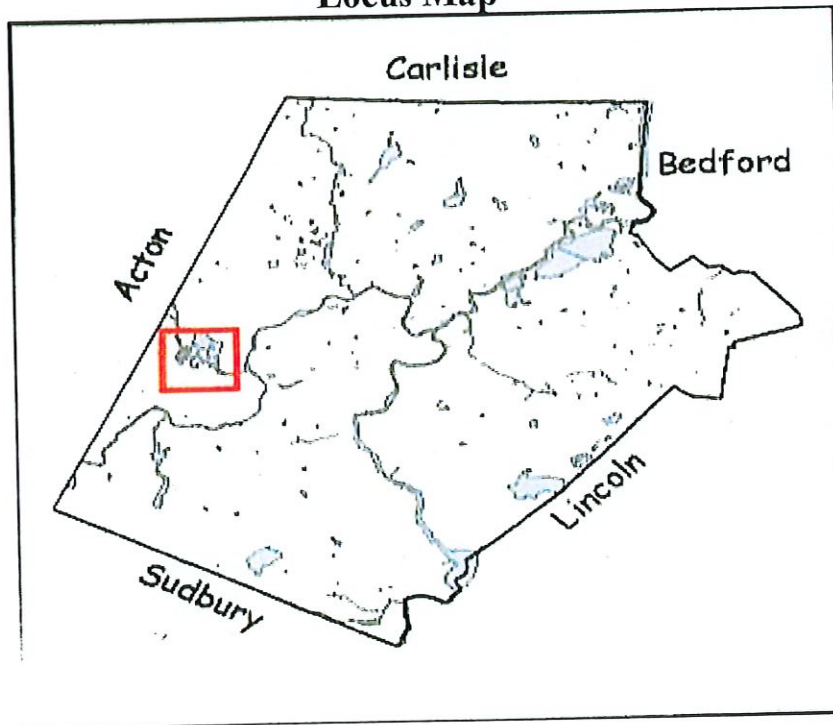
### **Goals of the Stewardship Committee**

- **Stewardship** – promote active citizen participation and stewardship to contribute to the management of this natural resource through programs such as the Weed Watchers Program of the Massachusetts Dept. of Conservation and Recreation, and by support of management plan objectives adopted by the Natural Resources Commission.
- **Protection** – Preserve the pond to promote its natural resource and ecological values. Work to promote the pond's biodiversity and natural habitat values by assisting the Natural Resources Commission and its staff to reduce aquatic invasive species and maintain water flow through the pond.
- **Recreation** – Enhance recreational opportunities (canoeing, bird watching, ice skating, fishing, etc.)
- **Management Plan** – Assist the Natural Resources Commission and its staff in the development and implementation of a pond management plan.
- **Education** – Raise awareness of the pond and its special qualities and problems with the community stakeholders (citizens, town officials, state agencies, and business community) and conduct public outreach to various local organizations.

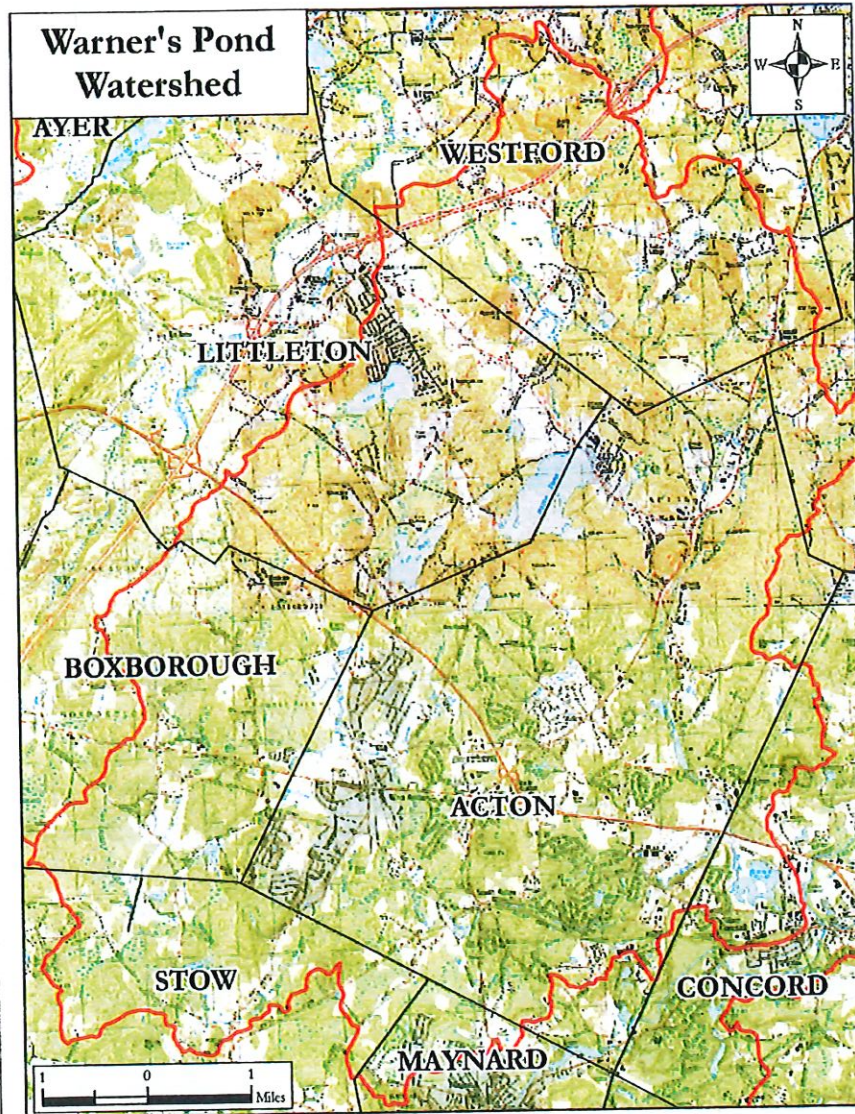
**Goals of Stewardship Committee:**

- **Funding** – Working with the Natural Resources Commission and its staff, pursue funding for the pond management through grants, partnering with other organizations, such as the Organization for the Assabet River (OAR), and seek other fund raising opportunities to be further identified.

**Locus Map**



The locus map contains the ponds, rivers, and tributaries within the boundaries of Concord. Included is Bateman's Pond near Carlisle, Great Meadows National Wildlife Refuge on the Bedford side, Walden Pond near Lincoln, White Pond near Sudbury, and Warner's Pond near Acton. The rivers are the Assabet, Sudbury and Concord Rivers. The two brooks that feed into Warner's Pond are Fort Pond and Nashoba from the northwest corner.



Warner's Pond is the receiving water body of an extensive watershed that is outlined in red on the above map. Ninety-five percent of the watershed lies outside the Town of Concord. Nashoba Brook and Fort Pond Brook converge a few hundred feet northwest of Warner's Pond and provide the majority of inflow into the pond. Nashoba Brook receives drainage from several smaller streams located in the towns of Acton, Westford, and Littleton. Fort Pond has several small tributaries and drain into Acton, Boxboro, and Stow.

## Quick Overview of Warner's Pond

- Created in the 1800's when Nashoba Brook was dammed to generate power for a mill
- Covers 54+- acres, including 3 islands
- Shallow 12 feet depth, average 4.5 feet
- Considerable accumulation of soft sediment on the pond bottom. These sediments are rich in nutrients and provide an excellent medium for the nuisance levels of aquatic plant growth that are plaguing the pond. Sediment and nutrient deposition has likely occurred at an accelerated rate due to the sizeable watershed that extends into several neighboring towns.
- 35 residences along shorelines, set back generally more than 100 feet from pond, few homes have lawns that extend to pond's edge.
- 2 known storm drains empty into Warner's Pond; One drain was installed in 1951, in back of the service station at the rotary, under Route 2 and into the pond at Libby's beach. The 2<sup>nd</sup> storm drain runs down from Crabtree to Wright Road under the first rotary and into Warner's Pond. Residential properties are connected to the Town of Concord Water Treatment Facility.
- Land use and management practices within the watershed:
  - External nutrient loading, Nashoba Brook inlet and mid pond
  - Elevated lead concentrations from historical lead works
- There are invasive non-native species overtaking the pond: fanwort, water chestnut and variable water milfoil, in addition to purple loosestrife – See Page 7 for descriptions out of "A Guide to Selected Invasive Non-native Aquatic Species in Massachusetts", Department of Conservation and Recreation-Lakes and Ponds Program.

### Management Objectives:

- Increase open-water habitat
- Control non-native vegetation
- Preserve diverse habitat types

## Management Objectives

- Entire western half of pond should be left unmanaged
- Reducing the plant density to improve open-water habitat should be limited to the eastern half of the pond where water depths range between 4 and 5 feet.
- Reducing the plant density in 15-20 acres on the eastern half of the pond would create a more favorable habitat, while improving access for recreational opportunities.
- May create 50% of the pond with open-water habitat, as opposed to the existing 10%.
- Water chestnut probably poses the greatest threat to continued loss of open-water habitat. Annual monitoring and hand pulling efforts throughout the pond would be continued to effectively prevent its widespread establishment, pulling before seed drop occurs in mid to late summer or herbicide treatments over a period of a few years, once the dam is repaired.
- The hand pulling efforts would be concentrated on the water chestnuts and organic material. Fanwort and the variable water milfoil coverage are too widespread to be effectively hand-pulled, and should be treated with a herbicide application.



Enjoying the Ride



**HELP PROTECT OUR LAKES AND PONDS**

- Remove **ALL** plants and animals from boat, trailer, anchors, fishing gear and dive gear.
- Flush engines and dispose of bait, bilge water and bait bucket water on land away from shore.
- Never release any plant or animal into a body of water, unless it came out of that body of water.
- Dispose of all foreign matter far from water!

For information or to report an infestation, please contact:

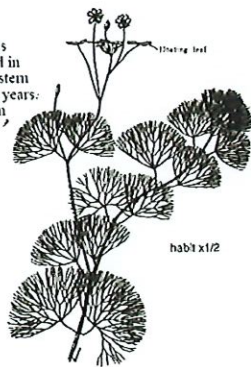

**Massachusetts**  
**Department of Conservation and Recreation**  
**Lakes and Ponds Program**  
 508-792-7423 x304 or 617-626-1411  
 or visit [www.mass.gov/lakesandponds](http://www.mass.gov/lakesandponds)

  
 Doreen H. Eversgren  
 Commissioner

**FANWART**  
*Cabomba caroliniana*



This southern United States native has been established in the acid water ponds of eastern Massachusetts for over 50 years. The plant is separated from the small white flowers and leaves that arise from a small stem. This gives the leaves a fan-like appearance.



**WATER CHESTNUT**  
*Trapa natans*



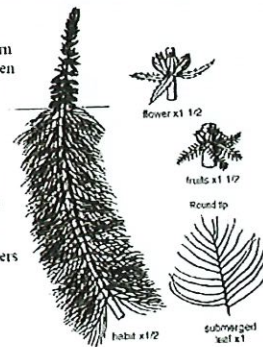
Water chestnut is a major nuisance in the Concord River and Charles River systems of eastern Massachusetts, and it appears to be spreading rapidly elsewhere in the State. Large populations have been noted in the Connecticut River, and it has been found in Berkshire County. It is believed that ducks and geese may be the major means of dispersal. Canada geese have been observed with the spiny nuts attached to their feathers.



**VARIABLE WATERMILFOIL**  
*Myriophyllum heterophyllum*



This southern and western U.S. species has long been established in the acidic waters of eastern Massachusetts. This species is identified by the leaf-whorls being located closely together along the stem and with large leaf-like bracts on the emergent stems that are longer than the flowers or fruits.



## **Warner's Pond Management Plan Summary**

**Prepared by: Aquatic Control Technology, Inc. (ACT)  
New England Environmental, Inc. (NEE)**

### **Existing conditions:**

- Large watershed drainage area results in transport of nutrients and sediments to the pond and considerable sediment accumulation in western and northern portions of the pond.
- High nutrient levels from external and internal sources
- Degraded water quality – high nutrients and low oxygen
- 5-6 acres of scrub-shrub wetland leaving 48 acres of open water
- Two non-native and invasive submersed plants–milfoil and fanwort
- Two non-native emergent plants–water chestnut and purple loosestrife
- Four major habitat types: shallow marsh, water willow marsh, open water, upland habitat.

### **Management Plan Recommendations:**

#### **ACT – Aquatic Control Technology, Inc.**

- Continue to support efforts to reduce non-point source pollution within the Warner's Pond watershed. Initiate management efforts to preserve the 4 distinct habitat types identified within the Warner's Pond system.
- Reduce the amount of aquatic vegetation in the eastern half of the pond to increase open-water habitat. Management of 15-20 acres is recommended and should focus on controlling non-native milfoil, fanwort and water chestnut.
  - Chemical treatment with herbicide would provide 2-3 years of control estimated cost of \$15,000-\$18,000.
- Continue annual monitoring and hand-pulling efforts to control water chestnuts.
- Attempt to control non-native purple loosestrife through hand-pulling, stocking of herbaceous insects, or chemical treatment.
- Establish a routine monitoring program.

## **Management Plan Summary:**

### **NEE – New England Environmental, Inc.**

- Increase flow by excavating channel from the inlet and around Boy Scout Island to open water portion of the pond.
- Leave the majority of shallow marsh (western side of pond) intact for waterfowl habitat.
- Add additional wood duck nesting boxes
- Place signs to discourage people from walking on the smaller islands
- Establish a Town camping area and policy for Boy Scout Island.
- Consider formation of Warner's Pond Advisory Committee composed of members of the Natural Resources Commission and local citizens.

### **Accomplishments of CNRC and WPSC to Date:**

- 1/24/04-Warner's Pond Stewardship Committee established
- 2004 – 2006 Water chestnuts hand pulled from Warner's Pond
- The mechanical harvester pulled weeds in 2004 and 2005 but the movement of the machine proliferated more growth. Alternative plans are herbicide treatments and/or herbaceous insects.
- Neighbors of Warner's Pond notified of 'No Dumping' of leaves and lawn refuse along the edges of the pond.
- Weed survey performed Fall 2004.
- The WPSC members attended Weed Watcher's Program established by the DCR Lake and Pond program, Fall 2004.
- Kansas Wight, representing the WPSC, met with Selectmen to apprise them of the Pond's condition and to help obtain funding from CPA. Funds of \$250,000 were granted from CPA for reconstruction of the Dam. Town Meeting approved \$100,000 for the design and permitting.
- Pail Factory Dam inspection uncovered damage to dam; Plan proposed for repair, neighborhood awareness/input meetings held, proposals sent out for bid, permits requested, tentative start date of May 2007.
- Set up booth at West Concord Family Festival Fall of 2004, 2005, and 2006.
- Signs being established to post around the pond for public awareness of regulations for "No Hunting" and "No Dumping".

## Warner's Pond History

How many of Concord's residents are familiar with this beautiful and viable resource in our town? This body of water has attracted many different types of activity over the past 155+ years. It is smaller than Walden Pond and slightly larger than White Pond but many people don't know it even exists.

The pond, as it is known today, came into being in 1857 after Ralph Warner bought the Pail Factory property located at the fork of Laws Brook Road and Commonwealth Avenue. He had the dam in that area raised in the Nashoba Brook to increase the water power for the factory.

There are 3 islands on the pond; the largest one is now known as 'Boy Scout Island', the next in stature is shaped like a horseshoe and named 'Horseshoe Island' and finally the 3<sup>rd</sup> is known as 'Bird Island'. Bird Island can't be accessed because it's small and most of it is totally under water. A Declaration of Trust, dated September 14, 1896, declared West End Land the owners of the now Boy Scout Island, then referred to as 'Isle of Pines'. At that time, a 225' bridge extended to the island from somewhere off Commonwealth Avenue, the area referred to as the point. West End Land created a prospectus displaying a surveyed plot plan of 34 cottage lots around the edge of this island which they had hoped they would sell individually and then build the cottage for each lot as they sold. It's hard today to visualize what the island would look like with all these cottages. On June 2, 1944, Burleigh Pratt and Harold Orendorff, Trustees of West End Land, deeded the island to Troop 33, Boy Scouts of West Concord. They continue to hold the deed today. Up until several years ago, this island was in use throughout the warm months of the year with scouts and neighbors' children, using it for camping and sleep outs. Jeff Gerow's Boy Scout Troop #33 built the first camp on the island and spent time there working on badges, cooking and sports. Several patrols would go to the island from Friday until Sunday.

According to the brochure "A Guided Walking Tour of West Concord" published in September 1994 by the Concord Historical Commission, Warner's Pond was a summer recreational spot where townspeople and prisoners from the reformatory were allowed to swim. It had a picnic area, playground, swimming beach and boat rides available for interested takers.

Eventually, in some of the quieter areas around the pond, muskrats and other wildlife found shelter and food. Trappers would set out traps to catch the muskrats or mink and then sell the pelts. Fishermen could be seen sitting on the pond in rowboats, sometimes at night with a lantern burning while they waited for their catch.

## Warner's Pond History

In those days, and in years leading up to the present, this pond has hosted many winter activities including skating parties. After the Christmas holidays, neighbors in the area would collect discarded Christmas trees to use for bon fires that were lit on the pond in the winter evenings. A crowd of skaters would then appear with their gear after supper to skate off their meal and get exercise. Riding or walking by the pond, kids could be seen playing "Snap the Whip", mothers or fathers pulling their children on their sleds and most probably someone with skis would be gliding from the reformatory end of the pond to the point, then remove the skis, pick them up and hike into town to one of the stores. Boys and men would shovel off the pond on many occasions for a game of ice hockey. Ice cutting was a popular activity on the pond as it was on many of the other local ponds since it was used in ice chests to keep food cold until refrigerators became more of a household item in the '40s. Ice houses could be seen standing at the reformatory end of the pond where they stored the ice after cutting it out of the pond. These ice houses caught fire, burned to the ground and were never rebuilt.



This picture was taken in the early 1930's. The cows, belonging to the Stefenovitch family, were guided through the back yards of the homes on Warner Street to Pond Street and then down to an open area of the pond where they would enter the water to walk and swim to Boy Scout Island to feed. At the end of the day they would be guided back to the barn on Warner Street via the same route. Mr. Stefenovitch and his wife lived at #14 Warner Street and tended to chickens and the cows and maintained a vegetable garden. The small barn that existed in the back yard of the house was torn down approximately 20 years ago. The houses seen in the far right corner were State reformatory houses on Commonwealth Avenue. These houses were unoccupied after many years of use and as a result, began the descent to self-destruction. Eventually all but one were demolished in September, 1999.

### **Warner's Pond History**

In the foreground of the picture, a posted barbed wire fence in the water can be seen.

Frank Carr and his wife Peg lived on Laws Brook Road. During the 1940's and '50's he rented out boats for 25 cents an hour. He could be seen sitting in his garage, with a chair pulled up to a window, ready to provide a boat to anyone who wanted to fish or just take a ride. There are still a few people in the area who remember him and took advantage of rowing around in one of his boats.

Libby's beach, named after a gentleman who lived in that area during the late 1800's and early 1900's, was at the north end of the pond and was a popular swimming spot. Even in the 1930's and 40's, Charlie Hamilton, a White Row resident and a reformatory officer at that time, would keep the weeds and brush off the beach for bathers. Another popular swimming spot in Warner's Pond was off Warner Street where Warren and Sophia Payne raised their family. To enjoy the swim, people first had to forget their fears of blood suckers in order get in the water.

During the late 1960's, the Red Cross Swimming Program was held at Warner's, off the point, on Commonwealth Avenue. Truckloads of sand were brought in make the beach a sandy area. At that time, it couldn't compare with Walden or White Pond for swimming.

Over the last 10 years of Warner's history, the pond has changed, with bushy growth closing in around the islands and the outside edge of the pond. This makes it difficult for boaters to come in close to any shore. Invasive weeds have overtaken the pond so some areas have changed drastically, undermining the habitat value of the pond. The wildlife, although still there, is not as prolific as it once was.

The harvester and Concord Public Works crews have been on the Pond over the last few summers for a two week period each, to help with this effort. Due to the large biomass of invasive plants, the harvester was not used at all this summer (2006). The application of herbicides, which will be more effective and save the Town staff resources, will be the method used to bring the weeds under control once the Dam has been repaired. The dam reconstruction is expected to be completed in 2007.

Today, in our quest to bring this pond back to a healthier state, we are constantly asked why the pond cannot be drained and dredged. The answer lies in the following: Due to the havoc dredging can cause to wildlife and fisheries, in 1998, the State of MA ruled that only great

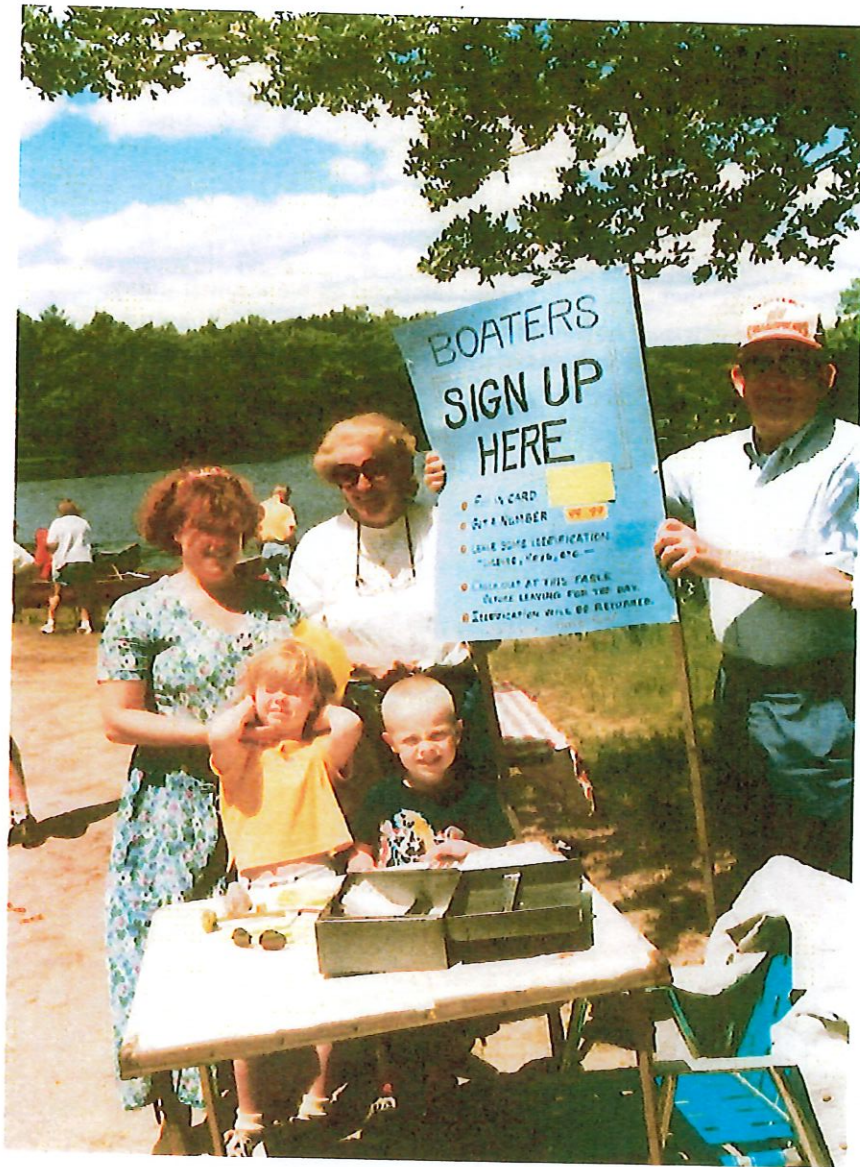
## Warner's Pond History

ponds can be dredged, and then only when a good purpose is being served. A 'Great Pond', by definition, is any pond or lake that contained more than 10 acres in its natural state. Warner's Pond does not fit the definition. Warner's Pond is a man-made pond with unequivocal evidence that it was previously Nashoba Brook and less than 10 acres in its natural state. The pond was first dammed up by Edward Wright to create a water power in order to operate a saw mill. In 1857, Ralph Warner raised that dam and created the pond as we know it today. Partial dredging may be allowed in areas today if repairs being made to the dam would be severely hampered or when and if built up sludge severely impedes water movement, such as near the opening at the northwest of Warner's Pond where Nashoba and Fort Pond brooks feed into the pond.



**A Quiet Evening Stroll to Check Skating Conditions on Warner's Pond**

**Editor's Note:** The above history has been gathered using materials and input from "A Guided Walking Tour of West Concord", residents of the town, particularly those living and growing up near Warner's Pond, and from personal experiences of the author, Joanne Loynd.



**Registration Day for Pulling Water Chestnuts  
July 28, 2005**

Wpsc Members, John & Maureen Swanson help to get the event started.

## **Weed Pulling Day**

July 28, 2005



**Bags for Water Chestnuts  
“Get Your Bags Everyone!”**



**Town Employees Get into the Act  
Spring 2004**

**Ready to Go!**  
July 28, 2005



**"Can someone teach that dog to pull weeds too?"**



**"Everybody Jump in the Boats!"**

## The Dam Project



*After a November 2005 dam safety inspection, the following dam deficiencies/issues were uncovered:*

- *Current Dam Deficiencies / Issues*
  - Failure of right (east) spillway training wall.
  - Severely eroded earth embankment with signs of previous overtopping.
  - Inoperable outlet controls.
  - Lack of emergency site access.
  - Heavy tree and brush growth on earth embankments.

*In addition, the hydrology and hydraulic analysis made during this time uncovered the following data:*

- *Inadequate Spillway Capacity to Pass the 100 – Year Design Flood.*
- *Backwater from Assabet River submerges dam crest under 50- & 100-year floods.*
- *Additional spillway capacity may be needed to pass less intense, more frequent storms/floods.*
- *Low Point North of Dam*

## Dam Project Benefits

*The project benefits will consist of the following:*

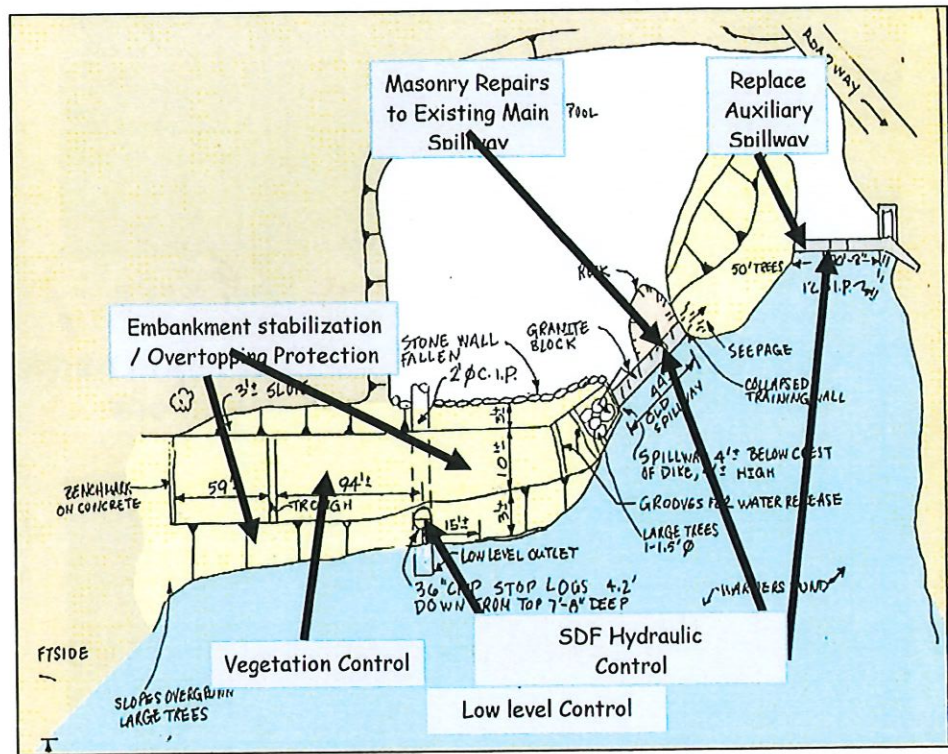
- *Improve Dam Safety*
- *Preservation Of Pond Resources*
- *Functional Water Controls*
  - *Allows for deliberate drawdown for pond management*
  - *Allows for emergency draw down*
- *Preservation of historic spillway structures*
- *Value added design to maintain a natural appearance*



This photo displays one of the embankments near the Warner's Pond Dam that has tree growth that can eventually erode the earth around the dam. On page 21, the photos depict the turf reinforcement mats that will be used and allow for a natural appearance without the concern of trees taking over.

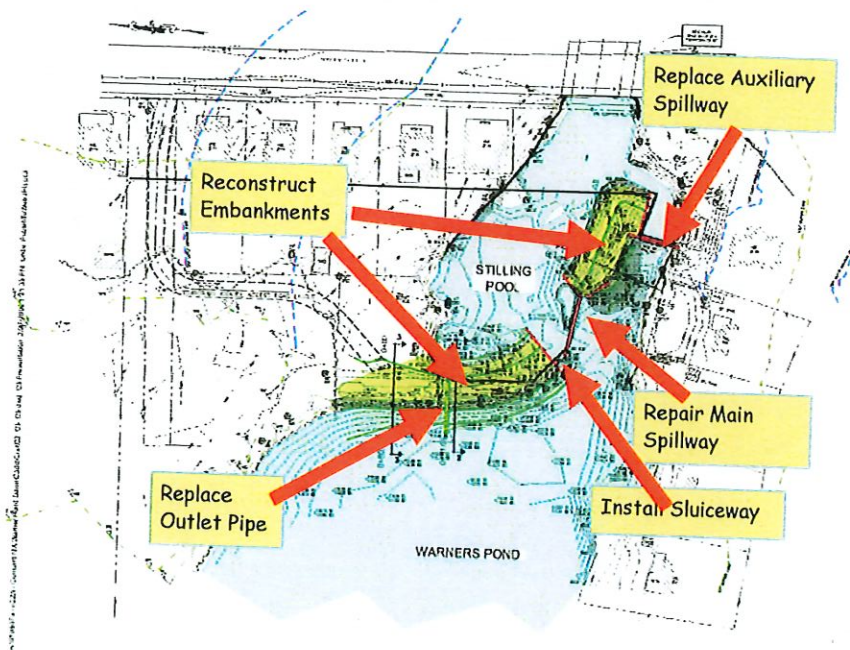
# PROPOSED IMPROVEMENTS

Sketch based on Haley & Aldrich's April 30, 1999 Dam Safety Inspection Report



Sketch based on Haley & Aldrich's April 30, 1999 Dam Safety Inspection Report

# PROPOSED IMPROVEMENTS



## TURF REINFORCEMENT MATS



***When undergrowth has completely grown through the mats, the mats are no longer visible***





**Tree root induced scouring on crest and downstream face of Coffey dam in Kansas**

### *Vegetation Control on Dams*

“Current state and federal policies, procedures, and practices relating to tree and woody plant removal, control, and management for dam safety are generally fragmented and inconsistent among state and federal dam safety agencies. *However, all state and federal agency dam safety officials and experts agree that trees have no place on dams and need to be managed and controlled on both existing and new dams for at least three important reasons:*”

- Trees and dense vegetation hinder effective dam inspections.
- Tree roots can cause serious structural instability or hydraulic problems, which could lead to dam failure and possible loss of life; and
- Trees and brush attract burrowing animals, which can in turn cause serious structural or hydraulic problems.

Based on the data above, the project team recommends the use of the turf reinforcement mats for the upgrade of the Warner’s Pond Dam.

### **Brochure Credits**

**Collator:** Joanne Loynd, Co-Chairperson, WPSC  
**Photography:** The Town of Concord,  
Daniel & Nancy Coughlin, and Paul Vigliotti  
**Underwriters:** The Woodin Family – Sigrun, Bob and Eddie  
**Printed by:** Minute-Man Printing Corporation

**Warner's Pond Brochure**  
**First Print 1/17/2007**