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# A Makeover for the Shenecossett Ponds– an Invasive Plant Management Project

*by Adrianne Loweth and Juliana Barrett*

Visitors to the Avery Point campus of the University of Connecticut often notice the two coastal ponds adjacent to the campus main entrance. What they may not be aware of is that invasive plant species are rapidly overtaking the shoreline of these two ponds. Volunteers from the Shenecossett Beach Club and Connecticut Sea Grant staff are developing a management plan focusing on the removal of these invasive plants.

*The larger Shenecossett Pond is a beautiful natural area with high visibility adjacent to the entrance of the University of Connecticut Avery Point Campus.*

## A Brief History of the Shenecossett Beach Club and the Ponds

Shenecossett Beach Club is a private club located in Groton, Connecticut, between the University of Connecticut Avery Point campus and the mouth of the Thames River. The Beach Club has been in existence since 1901. The local Native Americans called the area Shincosset Neck, which means "level land." The property consists of a stretch of sandy beach and dunes on Fishers Island Sound and two ponds behind the dunes. One pond is relatively large, covering about 1 acre, and the other is very small ($^1/_{16}$ of an acre). Originally there was one pond, which was a source of ice before refrigeration. A small bridge crossed the pond providing beach access. After a major hurricane, probably Carol in 1954, the bridge was replaced with a causeway. This created two ponds connected by a small stream that runs under a short wooden bridge. The nponds front on Shenecossett Road and are visible to anyone entering the main entrance of the Avery Point campus.

The beach club has survived many storms throughout its 106 years of existence. The 1938 hurricane and Hurricane Carol in 1954 completely destroyed the manmade structures on the property. The pond(s) survived all these assaults by Mother Nature, but in recent years the ponds have come under assault of another kind: invasive plant species are threatening the native wildlife and vegetation in and around the ponds. The ponds have become quite shallow, and the additional plant life is certainly a contributor. In the long run the very existence of the ponds is threatened.

The two ponds are mapped as inland wetlands on the Town of Groton Wetlands and Watercourses map produced by the Town of Groton Inland Wetlands Agency. However, the ponds do occasionally receive some saltwater influence, particularly during storm surges that overwash the dunes. During major storm events, sand and salt water may be carried into the ponds, influencing both the depth of the ponds and the species composition. A narrow culvert drains the larger of the two ponds, flowing several hundred feet under the road to a small salt marsh. During unusually high tide events, water from the salt marsh may flow up the culvert and back into the ponds, also influencing the salinity levels of the pond water for short periods.

The source of fresh water for the ponds is a larger pond across the street, owned by the University of Connecticut, that is fed by several streams. There is a culvert under the road that connects this larger pond to the beach ponds.

## Concern for the Ponds

Last summer was particularly dry. It revealed how shallow the ponds have become. The invasive plant life surrounding the ponds, however, has thrived.

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One late summer afternoon, a group of club members were discussing how sad the ponds looked. Most of one is now a mudflat. This led to reminiscing about the "old days". Everyone fondly remembered feeding the ducks; we all enjoyed watching the ducklings grow and hoped that the snapping turtles wouldn't get them.

Barbara [surnames omitted] talked about the campouts her boys would attend that included a fishing derby. Her boys would regularly play on the edge of the large pond, looking for frogs and floating boats. David remembered putting a Sunfish sailboat in the pond and going for a short sail with his friend, Phil. Nancy's childhood memories summarized the thoughts of the group: "The pond was a kind of scary place because we weren't sure what was under all those lilies. This only made it more fascinating to us. Rumors of snapping turtles kept our toes safely on the sand. We did go fishing, and actually caught small fish. Whoever was running the concession would supply us with over-the-hill hot dogs, which we would put on hooks attached to strings. I have no idea what kind of fish they were."

"We also loved standing on the bridge at the beach entrance, which spanned the two ponds, and watching each new season's families of ducks and swans. Season's end was marked by the annual swan flying lessons. They would make the crossing from the pond to the beach and swim into the Sound, where the lessons commenced. Swans are not great fliers because they have trouble getting airborne. It was always great entertainment," Nancy continued.

The reminiscences were all the more poignant, because none of the fondly-recalled activities are happening now, because of the changes undergone by the ponds themselves.

*Adrianne points out Oriental bittersweet (Celastrus orbiculatus), another invasive plant, which grows along the pond margin as both a climbing vine and trailing shrub.*

## Identification of the Problem

In recent years the ponds and shoreline have become quite crowded with plant life. Several beach club members have formed a Pond Committee with the goal of restoring the ponds. The members of the committee are beach club members who are good stewards of the environment and are concerned about the environmental health of the ponds. This past spring two Master Gardeners on the committee realized that most of the plant species causing concern are on the Connecticut Invasive Plant List, approved by the Connecticut State Legislature with Public Act Number 03-136 in January, 2004.

Although many invasive plants have taken up residence in and around the ponds, the three major ones are *Lythum salicaria* (purple loosestrife), *Celastrus orbiculatus* (Asiatic bittersweet), and *Phragmites australis* (common reed). A quick survey of the shoreline identified additional invasive plants: *Elaeagnus angustifolia* (Russian olive), *Rosa multiflora (multiflora rose)*, *Rosa rugosa* (rugosa rose–considered potentially invasive in Connecticut), *Iris pseudacorus* (yellow iris), *Lonicera japonica* (Japanese honeysuckle), and *Solanum dulcamara* (bittersweet nightshade).

In addition, there are several native species that we would like to control, including poison ivy, sumac, grapevines, and water lilies. A new arrival this summer is dodder, a parasitic plant, which is being removed

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*Purple loosestrife, (Lythrum salicaria), borders large sections of the pond and is rapidly spreading. While boasting pretty, purple flowers, this invasive plant crowds out native vegetation and often forms a monoculture if no control measures are taken.*

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*The larger Shenecossett Pond during the summer drought of 2007. Invasive plants border much of the shoreline.*

right away.

The list of native plants that we want to encourage includes *Asclepias syriaca* (milkweed), *Eupatorium fistulosa* (Joe-Pye weed), *Cephalanthus occidentalis* (button bush), *Impatiens capensis* (jewelweed), *Cornus florida* (flowering dogwood), *Cornus sericea* (red osier dogwood), *Viburnum acerifolium* (maple leaf viburnum), *Typha latifolia* (broadleaf cattail) – although this species can become invasive in wetlands, *Hibiscus moscheutos* (swamp mallow), and a variety of native grasses and sedges.

### Management Plans for the Ponds

The magnitude of this project, controlling the invasive species here, is overwhelming. We have very limited financial resources, but we do have a dedicated group of volunteers. Sweat equity and fund-raising will be our major tools, and we also hope to obtain some grant monies.

It is important to note that we cannot hope to totally eliminate all the invasive plants on the shoreline – certainly not in the short-term. The seed bank for many of the invasive species is often very large and can survive in the soil for many years. Rather, we hope to manage the invasives such that native plants will not be completely eliminated through competition. Over the long-term, we hope to eliminate at least some of the invasive species.

The control of the invasive plants is a volunteer project for one of the committee members who is pursuing certification as a Connecticut Master Gardener. The focus of that effort is to educate the public on the identification and control of invasive species. This has already begun. As we discuss our plans for the pond with fellow beach club members, we have been educating them one person at a time on invasive plants and why they are a problem. The purple loosestrife is a classic example. Many people have grown to enjoy the pretty purple flowers when they appear along the shore in midsummer, but we have been able to explain that, although pretty, they are crowding out native species and reducing biodiversity along the pond shoreline.

Management control methods used on the invasive plants often differ from species to species. Our short-term goal is to begin standard control measures as recommended by the University of Connecticut Integrated Pest Management (IPM) program of mechanical, biological, and chemical methods to reduce and control the invasive populations. The mechanical controls of hand-pulling, cutting, and digging will be long and tedious, but we have a dedicated crew of volunteers. For purple loosestrife, the biological method we plan to employ is the IPM beetle farmer program using *Galerucella* beetles. Chemical methods will be used sparingly to enhance the manual efforts of the volunteers. We are exploring the requirements to have one of our volunteers licensed to apply herbicides. Once the plants have been cut back, a small amount of herbicide will be applied by hand to the cut stems. More information on the beetle farmer program can be found at:

http://www.hort.uconn.edu/IPM/ipmbio.htm

*Adrianne Loweth and Juliana Barrett confer on the extent of the invasive plants and the best control methods for each. The drought during the summer of 2007 provided the rare opportunity to walk "in the ponds".*

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Once we have reduced the populations of the invasive plants, we hope to see the current native plants begin to thrive. We will see which plants germinate from the seed bank as soil is exposed through the removal of invasive plants.

Hopefully, the seed bank contains native plant seeds as well as the invasives. Management of the invasive seedlings, while time consuming, will be much easier than that of mature plants. New native plants may be introduced as well. Some plants under consideration are *Ilex verticillata* (Common winterberry), *Aronia arbutifolia* (red chokeberry), *Lindera benzoin* (Northern spicebush), *Itea virginica* (Virginia sweetspire), *Clethra alnifolia* (coastal sweet pepperbush), and *Asclepias incarnata* (swamp milkweed).

Another near-term goal will be to have the ponds scientifically evaluated and recommendations made. A detailed survey of the sources of water, the outflow of the water, and the depth, salinity, and oxygen levels would be very helpful. A complete inventory of the flora and fauna in and around the ponds should also be undertaken. In addition, it would be helpful to analyze the impact the building of the causeway has had on the ponds. This information will be invaluable in developing our next plan of action. We will be seeking help for this task from qualified scientists.

The long-term goal will be to implement recommendations from the aforementioned studies. Establishment of a long-term program of control of invasive plants will be necessary.

We would like to report back periodically on our progress to *Wrack Lines*. Unfortunately, the problems with our pond are not unique. We hope our efforts will improve the quality of life in and around the Shenecossett Ponds and will inspire others to do the same.

### About the Authors:

*Adrianne Loweth is a Master Gardener and is on the Board of Directors of the Shenecossett Beach Club. Juliana Barrett is Sea Grant's coastal habitat restoration expert and a member of the Nonpoint Education for Municipal Officials (NEMO) team at the University of Connecticut.*

** Editor's note: for you eagle-eyed spell-checkers, please note that the Beach Club uses a vintage spelling of Shenecossett for the club and ponds, whereas the beach and the adjacent road use two "n's".*

## Habla Español?

If you know of a teacher or student in the Long Island Sound area who speaks or teaches Spanish and is excited by coastal biology, we hope you'll let them know about Connecticut Sea Grant's new publication, *Tesoros Vivientes: las Plantas y los Animales de Long Island Sound.* This is a Latin American Spanish translation of the perennially popular booklet, *Living Treasures of Long Island Sound*, by Nancy Balcom and Lisa Wahle. Copies will be available, no charge, to K-12 teachers while supplies last. The illlustrated booklet is written in a style suitable for Middle School age and up. Contact Connecticut Sea Grant for more information. (See address on Contents page or e-mail irene.schalla@uconn.edu.)

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