



CRESCENT LAKE RESTORATION PROJECT



How about volunteering at Crescent Lake?

The golden cannas and pickerelweed are in full bloom and looking big and gorgeous, but the less desirable plants are also thriving.

Come help us remove the invasives and help our natives to continue to thrive.
There will be plenty to do in and out of the water.

What to bring? If you've got them: trowels, rakes, waders, kayaks/canoes.
Wear closed shoes to protect your feet.

VOLUNTEER DAYS FOR 2009
LAST SATURDAY OF EVERY MONTH
9:00 - 12:00

JANUARY 31

FEBRUARY 28

MARCH 28

APRIL 25

MAY 30

JUNE 27

JULY 25

AUGUST 29

SEPTEMBER 26

OCTOBER 24 (DUE TO HALLOWEEN)

NOVEMBER 21 (DUE TO THANKSGIVING)

DECEMBER 19 (DUE TO CHRISTMAS)



CRESCENT LAKE RESTORATION PROJECT



THE PLANTING

NATIVE PLANTS were purchased courtesy of a grant through the **Tampa Bay Estuary Program**. The species of plants were chosen by a team of local environmental specialists for their visual interest and also for use as habitat and food sources for the local wildlife.

Plants in the lake include: Pickerel weed, Bulrush, Canna lily, Iris, Button bush, Spike rush, Spatterdock and Sagittaria .

On the shore you will find: Jamaican Dogwood, Elderberry, Swamp Dogwood, Sweetspire, Dwarf Firebush, Cord grass, Tickseed, Maidencane, Golden canna, Blue flag and Lizards tail. (for photos and information about these plants, go to the University of Florida's plant id site <http://plants.ifas.ufl.edu/photocom.html>)

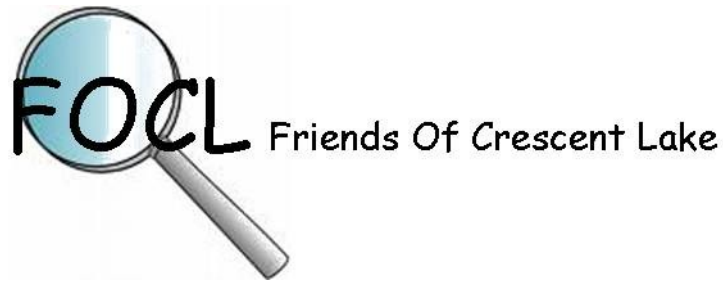
As the project continues and funds are raised, the area of native plantings will be extended, eventually crowding out the invasive species growing in the shallows of the lake. We hope this method can one day replace the applications of herbicides that affect both invasive and native plants.

WATER QUALITY TESTING

Since February 2007, water from the lake has been gathered once a month for the University of Florida Lakewatch Program. Samples are taken from the north, center and south ends of the lake.

Some of the water (500ml each) is filtered collecting algae on the paper. The filter paper and water samples are carefully marked and frozen. A data sheet is created noting information like wind and sun conditions and recent rainfall amounts. The secchi measurement is also listed. This tells how clear the water is. The average secchi measurement for Crescent Lake is 4 feet 9 inches.

DO YOU WANT TO BE ON OUR MAILING LIST? EMAIL lucyt@ij.net and we'll keep you informed of Crescent Lake Restoration events.



The City Beautification Awards were presented on Tuesday, Oct 7th at Sunken Gardens. The Crescent Lake Restoration Project received the Peggy Allen Award, which honors the "private initiative of groups and organizations whose volunteer efforts enhance the natural beauty of St Petersburg and promote public stewardship of our environmental resources".

PEGGY ALLEN AWARD

Peggy Allen was a charter member of the City Beautiful Commission. She graciously served on the commission for 30 years, and through her volunteer efforts encouraged good landscape design and promoted the introduction of plants that provided perpetual beauty, leaving an indelible mark on the City Beautiful.

The Peggy Allen Award honors the private initiative of groups and organizations whose volunteer efforts enhance the natural beauty of St. Petersburg and promote public stewardship of our environmental resources.

Criteria

The efforts have added to the natural beauty of the City.

The accomplishments promote the spirit of volunteerism.

There is ongoing maintenance of the project(s).



Why We Want to Weed

By Jim Bays

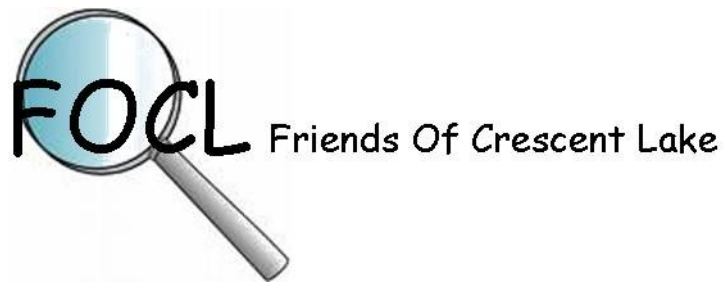
For a lake that has long been modified by drainage and development, Crescent Lake remains full of life of all sizes and types. Microscopic algae and the plankton that eat them thrive in our lake. These organisms are then eaten by fish such as catfish, bream and bass, and, in turn, these animals are eaten by mammals such as the Otter and birds such as the Great Blue Heron, Snowy Egret, and even a raptor, the Osprey. We enjoy these animals for their natural beauty and their interesting behaviors. Their presence tells us that we can live in harmony with our environment if we manage our natural resources appropriately.

With this in mind, it is easy to understand what motivates the volunteers contributing their time and energy toward restoring and improving Crescent Lake. By creating a habitat for wildlife that is safe for humans and animals alike, as well as beautiful to contemplate, we are making a unique contribution toward a better city and a better environment. It's rewarding when people stop us when we are working in the lake and point to the re-vegetation areas at the north and south ends, or the various litter traps (aka "water goats") now on all the inflow culverts, and comment on the lake's improved look and health.

As part of our beautification efforts in our second year of the lake project, most of the energy and time invested has been in the periodic removal of a variety of invasive, non-native aquatic plants. If neglected, they will overgrow the beneficial wetland plants so carefully nurtured over the past year. At a minimum, nuisance plants physically impede the growth and spread of the beneficial plants, and if unchecked, they will literally "go to seed" and create a recurring legacy of nuisance growth.

There is no shortage of non-native plants invading Florida's lakes and wetlands. But three emergent (i.e., above water) plants are most conspicuous and persistent in Crescent Lake: water lettuce (*Pistia stratiotes*), alligatorweed (*Alternanthera philoxeroides*), and creeping water primrose (*Ludwigia grandiflora*). Hydrilla (*Hydrilla verticillata*), another non-native plant of concern, is a submersed aquatic plant that was prevalent in the lake in 2007 but less so in 2008, likely in response to the City's lake maintenance efforts last year and this spring. This article focuses on "the big three" plants mentioned above, because those are the three species with the greatest impact to the progress of the lake beautification project. A future article will focus on the environmental aspects of Hydrilla management.

Water lettuce resembles a floating open head of lettuce and occurs singly or in a mass connected by short brittle stems called stolons. The leaves are light green, with parallel veins, and wavy margins, and are lightly covered by short hairs which form basket-like structures which trap air bubbles, increasing the plant's buoyancy. A mass of roots is suspended below the plant in the water (see Figure 1). It can be found usually floating in dense mats against the shore line or wedged between other plants. An interesting fact about the water lettuce is that the best biological evidence places its origin in South America, and is thought to have been introduced into Florida in the ballast of early explorer's sailing ships prior to the settling and colonization of the state. Famous Florida naturalist William Bartram noted the abundance of the plant on the St. Johns River in 1765 and included it in his paintings of native flora from that time. Now, though, it is listed as a noxious aquatic plant in Arizona, Florida, Puerto Rico and South Carolina. In Florida, it is on the Florida Prohibited Plants list of the Florida Department of Environmental Protection, and is on the Florida Exotic Pest Plant Council list as a Category I - "plants invading and disrupting native plant communities in Florida". The plant has now spread to all tropical and subtropical Africa, Asia and the Americas.



Why We Want to Weed (cont)

Although the leaves and particularly the root mat of the plant is known to be a rich habitat for aquatic insects, it is undesirable because of its strong potential to shade the water, thereby lowering dissolved oxygen content and reducing habitat quality of the lake, as well as physically impeding the growth of desirable plants.

Another key fact about this plant, and the others on our list, is that natural “biocontrol” agents have been introduced into Florida to help reduce and manage the spread of this plant. One insect is a South American weevil, released in Florida in 1987 after testing, whose adults feed on the leaf while the larvae mine the leaf. The weevil has a 30-day life cycle that allows a rapid population to develop, and it can effectively control water lettuce. Biocontrol weevils continue to spread in Florida. Another insect is a moth from Thailand released in the US whose larvae feed on the plant. Ideally, we can hope that a population of these natural and beneficial beetles will become established in our lake, with the expectation that they will exert a natural and continuous pressure against the spread of water lettuce.

FIGURE 1

Water lettuce (*Pistia stratiotes*)

Note the extensive root mat. Also, the whitish color of the leaves; which is caused by small hairs that trap air bubbles and repel water.



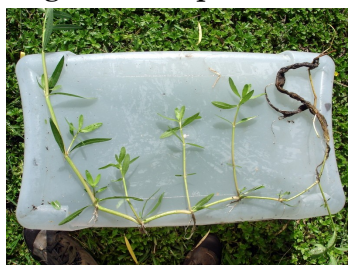
Alligatorweed is an emergent plant usually found growing as a sprawling mat over water. It has opposite leaves and small white papery flowers growing on stalks. Plants have hollow stems, which allow it to float on the water surface, and can grow up to 3 feet tall. The plants root in moist or shallowly inundated soil and expand in floating mats along the surface. Roots can develop at leaf nodes. Figure 2 shows the typical growth form of a single alligatorweed stem. Figure 3 shows the typical growth form as a dense floating mat.

First recorded in Florida in 1897, it has spread from its native habitat in South America to wide distribution in aquatic habitats throughout the southern United States. As with water lettuce, alligatorweed is thought to have been transported between countries in ship’s ballast water. Submersed plant parts such as roots and stems can provide habitat for aquatic insects and support the aquatic food chain, but as with water lettuce, the thick mats can displace native vegetation, clog waterways, restrict oxygen levels of water, increase sedimentation, interfere with irrigation and prevent drainage.

FIGURE 2

Alligatorweed (*Alternanthera philoxeroides*):

Typical growth form of an individual plant.
Total length plant length is a bit more than 4 feet.





Why We Want to Weed (cont)

Three types of insect biocontrol have been tested and applied in Florida dating to the 1960s: the alligatorweed flea beetle, the alligatorweed stem borer moth, and the alligatorweed thrips. Of the three, greatest success in Florida has been reported with the flea beetle, but greater control is reported when the beetle and stem borer attack the plant in combination. The flea beetle still occurs in Pinellas County (see <http://bugguide.net/node/view/174002/bgpage> for a picture of one on Sawgrass Lake). I have yet to see the beetle on the plants in Crescent Lake, although I have seen evidence of bug damage to alligatorweed leaves that seem similar to what is expected, and I note that alligatorweed appeared to be more of a growing problem through the dry season before significant rainfall began in July. The presence of biocontrol agents such as the alligatorweed flea beetle offer hope that long-term management will be performed more by insects than humans, and we can focus our energies on other emersed plants.



FIGURE 3

Alligatorweed (*Alternanthera philoxeroides*):

Typical growth form of floating mat on lake edge.

Note: glove added for visual scale. This photo also shows water lettuce growing in the mat.

Creeping Water Primrose is an exotic, perennial, emergent to free-floating plant native to Central and South America. It is highly invasive, occurring commonly in marshes, swamps, ditches, ponds, and around lake margins, where it forms dense floating mats up to 3 ft. tall, crowding and shading out native species. Creeping water primrose grows in two forms, with light green, floating stems early in the season with rosettes of smooth, shiny, slightly oval leaves, and, later in the season, with erect, reddish-brown stems that are very woody. Roots can form at the leaf nodes, and are characterized as soft, white, and fleshy when growing in mud or dense vegetative mats. Figure 4 presents a view of the flower of the plant and Figure 5 shows the plant growing as a floating island in Crescent Lake.

The plant originates from South America, but now ranges in the United States from New York to Florida, west to Texas, and along the west coast. The plant disperses vegetatively through stem fragmentation, but also can reproduce from seed. Because of the potential for vegetative reproduction, effective control of creeping water primrose must minimize the generation of plant fragments. This is why hand pulling of the entire plant is most effective. Selective application of herbicides to floating mats can also be effective. The water primrose flea beetle has received preliminary investigation as a biological control agent to promising effect but has not been implemented state-wide to my knowledge. No long-term control method has been developed for this plant. If the growth of the plant is tracked, and mats removed manually from our planting areas, or sprayed with herbicide elsewhere, then it can be kept in check.



Why We Want to Weed (cont)

In summary, we want to weed these plants out of our lake, but we are unlikely to ever completely eradicate these plant pests as they are well-established in Florida waters and in Pinellas County. Our approach should remain adaptive in that we keep an eye on the plant growth in the lake, and remove these nuisance plants periodically until our plants achieve a cover and density that minimizes the adverse effect of the non-native, nuisance plant species. We continue to look for volunteers willing to spend a few hours on a weekend morning helping to sustain the Crescent Lake beautification and habitat restoration project.

FIGURE 4

Creeping Water Primrose Willow

Source : <http://aquat1.ifas.ufl.edu/photos.html>



FIGURE 5

Creeping Water Primrose Willow – Typical Floating Mat

This floating mat is essentially a single plant of interlocking stems.



To learn more about these plants, and to review the source materials for this article, go to:

<http://aquat1.ifas.ufl.edu/ie6/index.html>

<http://www.apms.org/>

http://plants.usda.gov/java/profile?symbol=LUGRG2&photoID=luur_001_ahp.tif

Center for Aquatic and Invasive Plants <http://aquat1.ifas.ufl.edu/welcome.html>

Florida Exotic Pest Plant Council <http://www.fleppc.org/>

Florida Native Plant Society <http://www.fnps.org/>

Institute for Systematic Botany – <http://www.plantatlas.usf.edu/>

University of Florida Herbarium <http://www.flmnherbarium.ufl.edu/herbarium/>

http://www.ncwater.org/Education_and_Technical_Assistance/Aquatic_Weed_Control/weeds.php#CP



WHAT ABOUT THE LITTER?

Most of the garbage that is dropped out of car windows is eventually swept into the storm water system beneath the streets. Here the trash collects until the next rainstorm when the garbage is then swept to a centralized outfall. From St Anthony's hospital to 16th Street North and beyond, our storm drains dump directly into Crescent Lake.

Here is a photo of one of 13 Watergoats installed in the lake. Mark and Sheron Maksimowicz of New Earth Industries (pictured) installed this Watergoat. Watergoats are outfitted with chemical socks that soak up the harmful hydrocarbons so prevalent in stormwater runoff. This will lead to improved health of the lake. There is even a turtle platform incorporated into the flotation collar!

