

Liquid Sunshine

The Marsh Gardens Newsletter

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Because I have been busy during the sunny days, gardening, mowing, mulching or otherwise employed, I don't get a chance to sit down and put pen to paper, as it were, to produce the Newsletter. It is raining today, and I realized that one of my stock phrases about rain and its effect on our lives would be a good title for the Newsletter, because those are the days when I am more likely to be able to sit down and write it.

- We are continuing our work on protecting trees from mowers and string trimmers (see Plant of the Week article), by removing grass and mulching around the trees. This is also in preparation for the Commencement exercises for the Forestry School, taking place around Marsh Hall.
- Urban Resource Initiative has contacted us about using some space for a holding area for the plants that will be planted out in the New Haven community. This important outreach program is run partially through the School of Forestry. For more information, contact Chris Ozyck <christopher.ozyck>. In return, URI has agreed to assist with improvements and to return the "parking lot" area of the Garden to botanical use.
- We have received some valuable suggestions from readers of this newsletter about possible enhancements to services and resources at Marsh Garden. We encourage anyone to engage in this discussion with me, or the Steering Committee, which consists of Tim Nelson and Mary Helen Goldsmith (MCDB), Michael Donoghue (EEB), and Mark Ashton (FES). Please think about how we can make our plant collections more of a resource to your teaching, research and other work. Please inform us if the acquisition of specific plants or the rearrangement of existing collections might make the collections of greater use to you. Now is an excellent time to consider how plants at MBG can serve your courses, by acting as a source of plants demonstrating particular morphologies, evolutionary relationships, developmental schemes, physiological responses, or even microbial relationships.
- The School of Forestry has asked us to help them plant a ceremonial tree on June 1. After some discussion, we have decided that an Eastern White Pine (**Pinus strobus**) will be planted in a location somewhat approximating the area where a grove of Pine trees used to live until age and the tornado took them along to Glory Land.
- We are working with Gemma DiMartino in Vivian Irish's lab to plant out some Poppy (**Papaver**) varieties. Hopefully, this will add some color to the landscape around the greenhouses, as well as provide material for her research.

- We will be designing and planting an annual flower display in the growing space directly surrounding the Forestry School outside research station (the fenced in area with lots of plastic buckets and other containers). This will be designed to attract birds and butterflies, as well as draw the eye.

Our Plant of the (Every Other) Week is **Cornus florida**, or Flowering Dogwood in common parlance. This fantastic native American tree is in its glory right now here in the Quinnipiac Valley. Actually, its glory is noted in several seasons, but first with the spring: The showy flowers that we notice bedecking the small (20 to sometimes 49 foot high, with an equal or greater spread) medium-growing tree are actually not the true flowers, but only the showy bracts, which are modified leaves. This trait is similar to the Poinsettia, whose red, pink and white show is attributed to bracts, while the flowers are small clusters of smaller flowers. The same is true for the Dogwood.

The genus name comes from the Latin name for a member of the genus that is native to Europe, **C. mas**, or Cornelian-Cherry Dogwood (see Marsh Gardens Newsletter, Volume 1, Number 1). The specific name refers to its showy flowers (or bracts).

This tree is an excellent choice for the home landscape, because it has great spring impact, with white and pink flowers available depending on variety, nice green foliage through the summer and usually fantastic fall color lasting for almost a month in the fall. The fall color is red to purple.

The one caveat to bear in mind with Flowering Dogwood is that it has become susceptible to several diseases that in years past were not seen as critical. The factors involved in this equation would be the over-planting of the species, the movement of plants from one part of the country to another, and perhaps global warming and increased air pollution. The jury is still out as to why, but the disease has been linked by some researchers to the *Discula* fungus. Often referred to as ‘Dogwood Decline,’ this mysterious-seeming problem causes Dogwoods to languor in ill health, and finally expire.

If you must have a Dogwood but want to avoid problems, look for Dogwoods grown locally in a nursery in your area, and plant them in the edge of woods environment that they prefer. They would love a great humus-rich forest type soil, and morning sun exposure, with afternoon shade. Water the first couple of years, and don’t fertilize the tree for the first five years.

One of the factors that I have noticed involved with the cultural requirements of the tree is that, often in the con-urban landscape, the tree is ‘limbed up,’ which refers to the removal of the lower branches. This allows for more use of the ground beneath, and for mowers to pass beneath the canopy. In the forest, Dogwoods limb themselves up, as they reach for light, sloughing off lower branches where the pay-out from the tree’s reserves to produce wood is not off-set by the payback from leaf surface along that branch. But in the open and even in the edge of woods where the tree seems to do best in the wild, the branch tips of lower branches naturally fall to the ground.

I have a theory that goes something like this: Trees that do that tend to prefer protected root zones, either for temperature moderation, avoidance of compaction or

other reasons. Beeches are very similar in their morphology, and also are very sensitive to root zone disturbance.

As far as mowers go, that's why you mulch. Mulching offers little nutritive value to the tree, but it does two things, perhaps three, that have been studied and quantified. The first is that if you mulch around the tree's roots and collar (the area where the tree trunk emerges from the ground), you keep grass at bay, which means the lawn mower and string trimmer are kept at bay. String trimmers are terribly destructive to the cambium layers just beneath the bark of trees, especially around the root collar, which is a very sensitive zone). There are no scars to point to the damage, but the xylem and phloem are compressed by continual string trimmer damage.

Secondly, the mulch helps to absorb compaction damage from foot and wheeled traffic. Compaction of root zones is one of the biggest killers of trees, but it is very hard to diagnose. Often root disturbances will often show up as damage to the top of the tree in dieback, or large branches dying for no explicable reason. To make matters even more difficult, the damage often shows up five or more years after the original root zone incursion.

I mentioned that there is perhaps a third reason for mulching, and it would be this: Grass and trees are not often good companions, although there are exceptions. As a general rule, grass plants use bacterial soil relationships to garner nutrients from the soil, while trees rely on fungal relationships. This is not one hundred percent either way, but generally these rules apply.

Most mulches are ground up trees, or tree bark. As this high carbon material breaks down, it robs the soil of nitrogen, which *generally* feed the soil bacteria. As mulch breaks down, it provides food for fungal organisms of many kinds, including many that are essential for tree health. These micchorizal fungi actually share cellular membranes with tree roots.

So, mulch your trees, stay away with lawn mowers and string trimmers and plant a Dogwood in the proper place.

Until next rainy day,
Your friend,
Eric