

Liquid Sunshine

The Marsh Gardens Newsletter
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- We have created a composting area, where we have started recycling many of the harvested plants and other debris from the garden clean up and from harvesting in the greenhouses. Ginger, Leslie and I got a load of horse manure and bedding last week, which is our fuel source for heating up the pile, sort of like the Di-lithium chamber in the Starship Enterprise. We would ask that anyone harvesting plants in the greenhouses at the Marsh Botanic Garden do not put soil, plants or other organic material in the garbage cans, but instead inform one of the staff. We will take responsibility for adding appropriate materials to the compost, and separating out the material that needs to be thrown away.
- We turned off the grow lights in the OML Greenhouse, to save on electricity, and to cut the radiant heat quotient. As we are nearing the summer solstice, we guess that the daylight needs of the plants are taken care of adequately by natural sunlight. We also couldn't help but notice that many of the plants on which these high intensity lights were shining appeared to be dead. If anyone has an objection to our shutting down the lights, *please contact us*. We will return the lights to their previous setting. If the plants are no longer used, we would ask that they be removed. At some point we should be cleaning out the bays of that greenhouse. We do NOT throw away plants unless specifically asked to do so, so please if you have plants at the Marsh or in the OML greenhouse that you no longer need for your research or instruction, let us know so that we can remove them.
- Our first weekly Tea went well, with the folks from the Urban Resource Initiative visiting us for an hour. It was an excellent chance to exchange work ideas, experiences and goals, as well as to create a personal connection for their staff and ours. Each of the labs and offices will be receiving an invitation in coming weeks. We have earmarked Fridays for this event, although when you are invited you are welcome to propose another day if it's more convenient. You are our guests, and can choose the day and time.
- Raccoon tracks in one of our garden beds reminded us of the presence of another set of inhabitants of the garden. We expect a peaceful coexistence, but raccoons, along with skunks and possums, expert survivors in the 'con-urban' environment, are vectors for rabies and other pathogens, so we will just stay aware of those possibilities.
- Ginger, Leslie, Dave and I are working on clearing and cleaning up the head house of the greenhouse, throwing away such debris as has obviously collected despite and because of its lack of utility. We hope by the end of the summer that our stock will be better organized, easier to reach and also we will have more room. We have talked about seminar space, a dance hall and hootenanny area and even a speak-easy, but that decision will come after we have done with the clean up.

This week's Plant of the Week comes to us care of Dave Garinger, the Staff Horticulturist here at the Marsh Botanic Garden, Many of you know Dave, and those

who don't should come visit and get to know him. I have done some editing of the article, including a couple of artless additions. My apologies to Dave, who wrote most of the piece.

YUCCA BREVIFOLIA

JOSHUA TREE

The Joshua Tree, a member of the Lily Family, is a very oddly shaped tree from the Mojave Desert in the Southwestern US. Its generic name is one of the few non-European derivatives, coming from the Carib word for one of the Cassava relatives. The Joshua Tree can reach 32 feet and some specimens are thought to be over 700 years old. Dating them has been a problem, since, being a monocot, they have no annual rings to count, like let's say, an Oak Tree has. (While not strictly forbidden, dating plants may be proscribed by many religions.)

Early Mormons named the plant after Joshua from the Bible, because the branches of the tree reminded them of him, facing the sky, praying.

The Leaves are very stiff and linear on the ends of the branches and as they die, they tend to hang on and create a curtain around the stem. As it ages the tree branches many times. The visual appearance this creates has made a dramatic backdrop for many western movies.

There are 2 subspecies recognized. *Yucca brevifolia brevifolia* grows in the western and southern Mojave Desert. It is the largest subspecies and will only branch after it starts to flower. It is the dominant subspecies growing in [The Joshua Tree National Park](#). *Yucca brevifolia jaegeriana* is smaller and denser and doesn't have to flower to branch. This subspecies is found in the eastern Mojave and is protected in the [Mojave National Preserve](#) in Southern CA.

The Joshua Tree is totally dependent on the Yucca Moth (*Pronuba synthetica*) for its sexual reproduction and, likewise, the moth depends exclusively on the yucca for survival. The moth pollinates the flowers, then lays its eggs in the developing ovary of some of the many flowers. As the larvae develop, they feed on the maturing seed. So the Yucca sacrifices some of its seeds to ensure fertilization. Another relationship exists between the Ichneumon Wasp and the Yucca Moth. The wasp will locate the flowers that have the developing Yucca Moth Larva and will paralyze the larva, then lay its own solitary egg. As it develops, the wasp larva feeds on the yucca moth larva.

Humans have found many uses for this tree. The Indians ate the flower buds and seed pods. They used the coarse fibers from the leaves to make sandals and carrying nets. The smaller roots were used to make baskets and a red dye. The roots also produced a substance used as a shampoo or internally as a laxative. The pioneers cut many trees down for use as fence posts.

Today, its main economic use is the production of steroids from its seed pods. (So when dating plants, it might be good to ask for a urine test.)

The Joshua Tree is not found in many desert gardens/collections outside of the 2000 - 3000 ft elevations of the Southwestern US. It is very difficult to grow, because of its cold hardiness requirements. In its natural habitat, it is subjected to light frosts and snows, but no prolonged cold. In fact, it needs the light frosts in the winter months to bring on a required dormancy period. However, too much cold will kill it. Without this dormancy period, the plant stops growing and will eventually die as well. As you can imagine, it's very hard to mimic these conditions and grow the tree to any appreciable size.

I obtained some seeds about 10 years ago and planted them at the Marsh Gardens. The first batch died in our Southern Connecticut winter. Now I have 3 plants growing and have worked out a plan to keep them alive until they become too big to carry. I grow them in the greenhouse until the end of September. Then I put them outside in our cold frame and let them go dormant during fall into December. Then before Christmas, I bring them inside the greenhouse. This seems to do the trick. However, one year, we had a bad cold spell in December and some plants were killed. Right now, our surviving plants are still small and portable. I can't quite see myself carrying huge 10 – 15 foot trees in and out of the greenhouse, so I doubt our specimens will ever survive to maturity.

Dave Garinger
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JOSHUA TREE
MARSH BOTANIC GARDENS



JOSHUA TREE NATIONAL PARK, CA



JOSHUA TREE IN FLOWER

Photos by Dave
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