

Fort Wayne Bonsai Club Newsletter

Volume 9 Issue 8

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Changes and Problems

As you know we usually do not meet in August but I felt a newsletter was in order due to several schedule changes. As many of you know the picnic at Cheryl Owens home has been cancelled this summer. Cheryl has had a flare up of arthritis in her hips and may be looking at hip replacement.

The other major change is the field trip to Jack Wikle's. This trip will include a visit to Hidden Lake Gardens, which is managed by Michigan State University. A wide variety of plants are displayed in a tropical conservatory, dwarf conifer collection, hosta hillside and perennial garden. There is also a bonsai courtyard and Jack is the curator. We will also be visiting Jack at his home in Tecumseh, MI. He has a beautiful collection of bonsai trees and sells partially trained trees, tools and pots. This trip will be limited to no more than 15 people, as we will be driving a 15-passenger van. Jerry Kittle will be our chauffeur so you don't have to. This trip was scheduled for September 16th but because our son's schedule changed Jerry & I will be leaving for South Dakota on the 16th and we will be returning on the 1st of October. Therefore, the trip to Jack's will be Sunday, October 8th. We will be leaving from Meijer's on Lima Road at 8:00 am. The cost of the trip will be \$35.00 per person and will include rental of the van, gas, park admission and a great lunch for all attending. This will be an opportunity to see an expert bonsai artist's personal set up, buy some great trees, tools &/or pots and visit Hidden Lake Gardens. We have made this trip before and a great time is had buy all! We try to do a field trip such as this every year but it isn't always possible. We need at least 10 people to make this trip possible but will not have room for more than 15 so first come first served. The first 15 people to call Ed to register then get a check to him for \$40.00 will go on this fun trip. Send your check to: Ed Hake, 2710 Waynewood Dr., Ft Wayne, IN 46809; PH; 747-0493 Cell 385-0308 ehake@aol.com.

There will be no meeting in September; the field trip above will be the September meeting. Two weeks later, on October 21st will be our show at the Foellinger Freimann Botanical Conservatory so work on getting your trees ready for the show. There will be a newsletter one week before the show.

Japanese Garden Update

Yesterday I received the plans for the Japanese garden from Bob. I have not talked with Lynda Heavrin recently. The last information I had was that they were still getting a plan put together and may start working on it yet this fall. I will have a full report at the field trip.

Kathy's Corner Bonsai Club Library Book List Contact Kathy Lee @ 637-6242 to check out books. Last weekend was the Annual Flower and Garden Show sponsored by the Fort Wayne Chapter of The Gardeners of America. Being the show chairman this year, I decided to "redo" the Show Schedule that had not been updated for several years. Always on the lookout for ways to put bonsai in the public view, I took the opportunity to "add" a second category of bonsai to the Schedule. I put it in the Potted Plant – Flowering Section.

Because I don't have any flowering bonsai, I borrowed 3 bonsai from Darlene to take to the show. I put her 18 year old flowering lantana and a flowering Potentilla into the "Potted Plant - Flowering, bonsai" class. The lantana took the blue ribbon for the class and the Best of Section for Potted Plant –

Flowering. So, it went to the Awards table to compete for Grand Champion of the Show. The third plant that I borrowed was her 10year old variegated bougainvillea. I put it in the Potted Plant – Foliage Section. It got the Best of Section in the single plant class, so it went to the Awards table too.

I put a small ficus forest in “Potted Plants – Foliage, multiple plants, single variety”. It received Best of Section and went to the Awards table. So, there on the table were 3 bonsai amidst the other Best of Section Winners. Darlene’s variegated bougainvillea won the Grand Champion of the Show!

Now this show is nothing like the Chelsea Flower Show in London, but the lantana and the variegated bougainvillea are really outstanding bonsai. And they both drew so much attention and comments. I don’t know that anyone there will become a bonsai enthusiast because of seeing these plants, but I think they may remember them and talk about them to their family and friends. And maybe, just maybe others will begin to consider adding this form of gardening to their endeavors.

Next weekend is the Garden Walk and plant sale at the County Extension Office. (Saturday 1 – 4) I’m borrowing Darlene’s bougainvillea again and a couple of Ed’s trees. There are 14 or 15 theme gardens at the County Extension Office. One of them is the Woodland Fen. A couple of years ago that garden added a Zen Garden. I’m not sure why, because I haven’t found anyone in that team that is really interested in bonsai, but I understand that a couple of the ladies saw a Zen Garden somewhere and thought it would look nice in their area.

For the first few garden walks, the Zen Garden had a couple of plantings, a gravel bed, and some larger rocks. Someone suggested to them that they contact the FW Bonsai Club to see if we would provide bonsai for the walks. Since that time, I’ve been taking 5 bonsai to the walk. I’ve borrowed from Ed in the past and used my own things.

Each time, I receive a big thank you and am told of all of the favorable comments that they receive on the bonsai. I’ve been busy covering my own garden area; so have not been available to interact with the visitors to that garden. This time, 3 separate people from that team have contacted me to be certain that I will be able to bring trees again! So, I guess they really do like to have them there. I’ve provided a binder with a little information about the trees and some business cards with club information and contact information. Another chance to put bonsai on the map!

2006 Calendar of Local or Nearby Events

October 8th 2006 - Meeting-Field trip to Jack Wikle’s home.

October 21st 2006- Fall Bonsai show at the Foellinger-Freimann Botanical Conservatory

November 18th 2006- Meeting, location & Program to be announced.

December 16th 2006- Christmas luncheon, location to be determined.

June 2007- Ben Oki workshop.

Factors that Influence Watering

by Brent Walston <http://www.evergreengardenworks.com>

Introduction

I like to check for dryness by lifting the pot. It takes some experience to develop the 'feel' of a dry bonsai, but it works quite well. It is amazing how much an adequate amount of water will increase the weight of the pot. Of course this is only possible for smaller plants. I don't go around lifting 5 gallon cans to see if they are dry, or the monster bonsai. But since about 25% of the volume of a proper soil mix is water at the saturation point, this is a

significant increase in weight, and one needs only to pick up a pot when wet, and then when dry, to tell the marked difference. Dryness can also be tested with a chopstick inserted into the bonsai pot as a sort of dipstick. When the chopstick is pulled out and it is nearly dry, it is time to water. This is a method advocated by Michael Persiano. A third method, perhaps used by most people, is to dig half an inch under the soil surface. If it is dry down to this point, it is time to water.

There are several factors that affect 'drying time' and they are all interrelated. For example, *Malus* and *Prunus* can tolerate denser soils under optimum conditions because they grow so quickly that the roots soon colonize it. This rapid top growth quickly pulls the water out. I have to prune all the time of course, so when I cut them back to form a new trunk section, they are now too wet until the top grows back.

Here are some of the factors I have found that influence the drying time:

Soil Mixture The primary components holding water are: organic and inorganic fines (very small particles), peat moss, vermiculite, and clay. If you increase the amount of any of these amendments to your soil mix, you will decrease drainage, and increase the water holding capacity of your soil, which will increase the interval between watering.

Increasing the percentage of these elements to the point that the soil will hold more than 25% of its volume as water is not recommended. Beyond this point you may begin having root rot problems from decreased aeration (poor drainage).

The components that increase drainage (aeration) and reduce water holding capacity are: inorganic and some organic (bark) large particles (greater than 1/8 inch). These include lava rock, coarse sand, perlite, turface and other stable fired clay products.

Plant Size and Pruning Fast growing leafy species colonize rapidly, drying out the soil. Root bound or even properly root colonized plants will dry a pot very rapidly. This rapid drying of the soil is very healthy for the plant, if you manage to water often enough. Each time the plant dries out it pulls a fresh charge of air into the root zone. Likewise, each time the plant is watered and the excess water drains, another fresh charge of air follows the water to through the root zone. I consider the ideal watering interval during the growing season for outdoor plants to be one day. This makes watering easy to remember or schedule, and will almost assuredly prevent root rot problems. Cycles shorter than one day inevitably lead to dry or wilted plants on occasion.

Plants that are well root colonized in the pot shorten the watering interval as the top grows and demands more water. After a plant is top pruned, transpiration is decreased and the watering interval is again increased. For plants that are very susceptible to root rot, it is important to pay close attention to this factor.

Fertilizer By affecting how fast the plant will grow, fertilizer can accelerate the drying time. It can also speed the decomposition of the organic portions of the soil, causing premature soil collapse which increases drying time and slows growth. Soil collapse due to decomposition is a much overlooked factor in plant growth, and water intervals. It can be avoided by using a higher percentage of stable inorganic material and high quality organic material such as fir or pine bark. Decomposed wood fiber products other than bark decompose very quickly and are generally unsuitable for bonsai. The same is true of garden or other compost.

Disease Root rot will decrease the ability of the plant to take up water and slow the drying time. The symptoms of root damage can be very misleading. There are several diseases that cause the blockage of the plant's vascular system, preventing it from taking up water. The outward symptom is the wilting of the leaves. The natural inclination is to water the plant, but the problem is not a lack of water, it is the inability of the roots to take it up. This leads to overwatering which severely exacerbates the fungal problem. The solution is to let the plant dry out, not to water it. Whenever a plant wilts, first make sure that the soil is dry before watering it. If it is not dry, this can be a symptom of a fungal infection of the roots.

Wind Wind will increase transpiration and decrease the watering interval. Strong winds, under even moderate temperatures, can very quickly dry out a plant. Some plants are much more vulnerable than others. In general you should not place bonsai in an area that receives prevailing winds. This can even be a problem in winter when the soil is frozen around the plant's roots. The roots cannot absorb water under these conditions, but the foliage and stems continue to lose water. It is very important to protect plants from wind under these conditions, and to make sure your plants are thoroughly watered before the onset of cold drying winds.

Sunlight Sunlight will heat the plant and the pot, increasing transpiration and evaporation, decreasing the watering interval.

Bonsai grown in the hottest and driest areas of the country need to be located where they will get morning sun and afternoon shade. The fastest growth will occur where there is bright light and optimum (moderate) temperatures, so there is little growth loss for most plants by placing them in the shade in the heat of the afternoon.

Optimum light levels will result in the fastest growth which will also decrease drying time by promoting increased foliage.

High Temperature High temperature will increase transpiration even in the absence of sunlight and decrease drying time. Temperatures above 80F, with morning to full sun, and moderate to low humidity, will usually mean watering every day for most established container plants (and bonsai).

High Humidity High humidity will decrease transpiration, and moderate high temperature, which will increase drying time. Increasing humidity can be a valuable part of extending the watering cycle in hot dry climates. In our area, I can avoid watering twice a day by giving the plants one or two short (several minute) bursts of fine spray during the heat of the afternoon when the temperature exceeds 100F.

Pot Size An extra volume of soil increases the reservoir of water and increases the drying time. For very fast growing, water thirsty species such as *Salix* (Willow), this is a must.

And finally **Many of these factors may be manipulated to control the drying to suit our conditions. I feel that the ideal drying time is one to two days while the plants are actively growing.**

Root Heat in Containers

by Andy Walsh <http://www.evergreengardenworks.com>

Introduction This was originally a post from the Internet Bonsai Club where Andy is a frequent contributor. Andy was asked if direct sunlight shining on black plastic nursery containers could heat up to the point of damaging the roots. In typical fashion, he replied with a most complete and thoroughly researched answer.

Trees in the Earth High temperatures can seriously damage the roots of plants kept in containers.

As I'm sure you are aware, the roots of trees in nature normally experience a fair amount of temperature variation. As the feeder roots of trees tend to inhabit the upper 1 foot or so of the soil, they are affected by the increase in temperature that this layer of soil experiences from direct sun and ambient air temperatures. These effects rarely go below about 1 foot and the effects drop off with the depth.

In "Soils: An Introduction to Soils and Plant Growth" (Donahue, Miller, and Shickluna) Miller shows a chart of air temperature and soil temperatures at different depths throughout a day in July in Utah. At 12 noon the air temp was about 97F and fell to about 60F at midnight. By about 1pm the soil at a depth of 2 cm reached a peak of about 93F. At 10 cm deep a maximum of about 85F was reached at about 6pm. At 30 cm it only budged up to 75F at midnight. All the soil temps dropped off into the mid 60's to 70's overnight. This kind of temperature movement of the soil is fairly common in most areas. These authors offer a (not so accurate) rule of thumb to find the mean average soil temperature for your area: add 1 degree C to your mean average air temperature. This could be loosely applied to monthly averages also. This should give you an idea of what temperatures your local trees root's see in the soil in your area.

So it's obvious that some tree roots can see fairly high temperatures in nature. However, in a deep forest little sun reaches the forest floor and root temperatures are probably fairly low and more constant. This probably holds true for most lightly wooded areas such as my backyard also. (I'm sure all of us are aware of how much cooler the ground is when sitting in the shade of a tree). I would venture to say that many tree's roots are used to seeing moderate temperatures and are not used to high temperatures.

Trees in Containers In the world of container culture of trees the situation is a bit different. The same wide temperature variations occur as described above but they can be much more exaggerated. The roots of trees in containers do not benefit from the buffering action of the surrounding soil. In most cases the roots are just on the inside surface of the pots and can be quickly and easily affected by direct sunlight and air temperatures.

Dr. Carl Whitcomb in his book, "Plant Production in Containers" cites some research showing that very high temperatures can be experienced by roots in containers. One researcher in So. California found that soil temperatures in black plastic containers reached a maximum of 115F and remained at or above 100F for 5 hours each day that they were observed (Harris, R.W. 1967 "Factors influencing root development of container grown trees" Proc. Int'l Shade Tree Conf. 43:304-314). Some researchers in Mississippi also measured the temperatures of black plastic containers in a bed of plants and found temperatures in excess of 120F near the sides of the containers and 100F in the center of the containers on one edge of the bed. Containers located in the middle of this bed, for instance, had temperatures less than 90F. In this study the containers were closely arranged providing a solid canopy of foliage which shaded the inner containers. (Rauch, Fred D. 1969 "Root zone temperature studies" Miss. Farm Research) Generally, this will be the case in nurseries that typically arrange plants in beds to maximize space. Bonsai on the other hand are normally spaced far apart to assure that all branches get sun. Therefore the roots of trees grown as Bonsai will normally see the higher temperatures.

Although it is generally accepted in the nursery business that high temperatures are responsible for poor growth, there is little documentation on the species specific effects of high temperatures. There are some studies available though; for instance, Loblolly pine (*Pinus taeda*) was found to show maximum root growth at temperatures between 70-80F with growth reduced as much as 90% at 95F. This same study found that a number of conifers were killed in a few hours at 117F (Barney, C.W. 1947 "A study of some factors affecting root growth of Loblolly pine. *Pinus taeda*" PhD dissertation. Duke University School of Forestry). Although there are only a few more studies to go on, it is not a tremendous leap of faith to assume that most temperate tree roots probably have growth optima in the 70-80F range also. Higher temperatures probably slow or stop their growth, and maybe kill them as well.

Shading the Containers There is also some information on the effects of shading containers on root growth. A study was done where containers were shaded at levels of 0, 30, 46, 64, and 100%. Four woody species were used: seedlings of Austrian Pine and Mugo Pine, and rooted cuttings of Japanese Garden Juniper and Chinese Holly. Roots were examined, counted, and graded before the study and after 6, 12, and 18 days. The study found that the higher the % of exposure the higher the root damage, and, that the most damage occurred during the first 6 days. The Junipers were the most affected losing 88% of their roots after the first 6 days. The Hollies were at 72%, the Austrian Pines at 48% and the Mughos at 40% after 6 days. The author did not indicate what % exposure these numbers came from. (Whitcomb, Carl E. and George W. A. Mahoney 1984. "Effects of temperature in containers on plant root growth" Okla. Agri. Exp. Sta. Res. Rept. P-855:46-49).

Whitcomb shows some stark photos of the effects on roots from this type of exposure. On the exposed sides of containers there are no roots at all. On the shaded side there are plenty of roots.

Whitcomb states that "This study shows that heat stress on plant roots in containers is a serious problem. The rapid loss of roots following exposure correlates with the abrupt plant stress frequently observed when container-grown plants are spaced during the summer. Roots killed by heat are prime sites for the entrance of root-rot disease organisms. Root death from high temperatures may be a major factor in providing an easy entrance to root diseases".

Color of the Containers There have been some studies on replacing black plastic with white plastic but while white containers do reduce the soil temperature, the white polyethylene becomes brittle on UV exposure and falls apart. But in general, the lighter the color of the containers the less the effect from sunlight. Something to consider.

Heat Damage I have thought about this issue many times over the years as I have noticed that some trees that I have kept up on my growing benches seem to languish in the hot summer sun where ones of the same species that I have crowded together on the (cooler) ground "seem" healthier. I have often suspected that summer heat damage might have been responsible for the loss of some of my stock plants in the winter.

Root rot usually occurs in the summer and is invariably blamed on poor drainage and overwatering. I wonder how much root death from overheating may also contribute to the summer root-rot phenomenon. (It's almost ironic that it's recommended to place Bonsai affected by root-rot in the shade after treatment - part of the cure?) Even some of the winter occurrences of root-rot may have had their origin in summer heat killed or damaged roots. (Now, there's some interesting studies to be performed).

And finally I think it's fair to say that high summer temperatures and placing Bonsai in full sun throughout the growing season probably have some negative effect on a Bonsai's roots. Precautions such as midday shading and watering to cool down the containers might be in the best interest of a Bonsai, and I have even seen these things mentioned in some Bonsai books. (I may even rethink the layout of my growing area and move some trees to more shade in the deep summer).

The club has the following items for sale:

Wire assortments: club members \$40.00, subscribers \$42.00, non-members \$45.00

Micromax micro-nutrients: \$5.00 for members, subscribers \$6.00, non-members \$7.00

Bonsai soil, shopping bag of 2 scoops: \$5.00 for members, subscribers \$6.00, non-members \$7.00

New Fertilizer blocks. ½ lb bag \$2.50 for members, Subscribers \$3.00, non-members \$3.50 1 lb bag \$5.00 for members, Subscribers \$5.50, non-members \$6.00

We also have bonsai slabs for forest plantings. Prices range from \$25.00 to \$50.00. Call Darlene or Ed regarding purchase.

All these products are great buys and priced much lower than retail if they are even available in this area. Call or email Darlene or Ed if you want products brought to this meeting.

Don't forget, if you want to go on this field trip call Ed to register then mail him a check.

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