

Bonsai Calendar and Hot Weather

By Charlie Mosse, August 2023

There is an important note to add to the information in the Bonsai Calendar for post-potting care that was alluded to, but not really explained. One must consider how much time there is after a re-pot, or other significant work, for a tree to recover before the weather/season changes. A cold snap, heat spike or heat wave can slow a plant's recovery from a significant procedure. These events naturally slow recovery by slowing photosynthesis and root growth, which is the growth that is needed to help replace the energy stores used in the recovery, as well as to store energy for the next season. If you are doing significant work in prime time, there is adequate time for the tree to recover before the season changes.

In the case of re-potting, a cut root has to go through several steps before new roots start to grow. Root re-growth can be a slow process for conifers; a shorter process for deciduous, semi-evergreen and broad leafed evergreens; and a fairly quick process for warm weather plants especially during the warm months. Experience will show you that root re-growth is predictable when you start with a healthy tree and you are repotting during prime time. All of the procedures we perform on trees stresses them. The more that is done, the more stress there is on the tree.

The goal is to give the roots enough time to fully recover and get growing again. The tree will utilize its stored energy from the previous growth cycle to produce the next roots and leaves. With good fertilizing and watering techniques, the tree will ultimately store the energy it needs for the next round of work. A healthy tree will be strong enough for the usual techniques we use and to withstand other stressors like heatwaves, being knocked off of a bench, soil dug up by an animal, unseasonable cold snap, over-fertilizing or pesticide spraying...any event that causes the tree to suffer. A healthy tree will bounce back over time. The amount of time it takes to recover depends on the species, how badly it was stressed and the care it receives.

While we are on the subject of stress, the heat is here. At times it gets too hot for the tree to take up enough water to cool the leaves and the pot can and will get so hot that the roots get "cooked", that is, injured or killed. Cooked roots cannot absorb water properly, if at all.

The foliage of most of the plants we grow can withstand a lot of heat and direct sun in nature and in bonsai pots. Some relief for a potted plant is beneficial, however, prevention is best. **Reducing or eliminating sun exposure on the pot is critical.** Roots normally grow in the ground where the conditions are cooler and more stable. In the pot, the soil temperature will be, at the least, the ambient air temperature, cool in the morning and hot during the day. With the pot in the sun, the soil temp will climb 10-40 degrees above ambient air temperature, at times for the entire pot, or at least the part of the pot in direct sun. The smaller the pot the more susceptible it is to rapid heating and root damage.

Here is a list of things you can do to mitigate heat stress:

- Cover the pot entirely with the material extending over the edge of the pot to shade the sides like avoiding sun exposure to the pot from 10 am to 4 pm. Some of the common things used:
 1. Cloth materials like an old bath towel, bed sheet of 2-3 layers, old t-shirt, frost protection fabric or any material that you can water through.
 2. Styrofoam by cutting a hole for the trunk, a slot to slide it around the trunk and overhang to shade the sides.

3. Aluminum foil. Allow an air gap between the foil and soil/pot where possible.
 4. Thin piece of wood like Cedar 5/8" board. Like the styrofoam, cut a hole for the trunk and a slot large enough to slide the wood around the trunk and over the edges of the pot.
 5. Drainage screen. Same preparation as for the styrofoam.
- Move the plant to a shadier area. Filtered shade is best especially for an extended period of time.
 - Create some shade. 40%-50% is good for inland areas and 30-40% in cooler areas.
 - Put plants under the growing/display bench.
 - If your area is windy, create some additional wind screen or move to a less windy spot. Wind is a powerful and unrelenting desiccator.
 - Using a tray or flat, add some pumice or coarse sand and place trees into the pumice or sand to cover the sides of the pot. Be sure the tray drains.
 - Put pot into a larger pot and add pumice or sand or other substrate. Cover the sides of the pot.
 - Place pots into a raised planter or raised bed, burying the pot up to the top edge of the pot. Cover the pots as above.
 - Cover the soil in the pot with a layer of pumice or long strand sphagnum moss. Cover the pots as above.
 - Misting the soil surface helps but it is very temporary. If the soil is covered with sphagnum moss or cloth, then misting the cover until it is wet will last longer than misting bare soil.
 - Wetting the ground under and around the plants will cool the immediate area a bit and add humidity around the plants. This will help reduce the stress on the leaves and the demand on the roots.

As always, only do significant work on healthy trees. If a tree is not healthy and the work must be done, you will need to take additional precautions to help the tree recover on a timely basis. If you have an issue with a stressed tree, the best thing to do is to bring it in to a meeting for some hands-on help. Also, you can post photos on the SDBC Facebook page with a description of the problem or post the same on the SDBC website. Think prevention before the heat hits.