Bonsai Society of Upstate York Inc.

Dues Renewal Notice 2022

Dear BSUNY member,

We hope that you have enjoyed your membership in the Bonsai Society of Upstate NY, Inc. and that you have found it helpful with your bonsai work. With your continued support we can continue to provide high quality educational material at our meetings, of course, while working around COVID restrictions! Membership dues for the 2022 calendar year are now due. Please send your check now to keep your name on our membership list and to continue receiving the Billboard and other membership news.

Annual membership dues are due during the month of January, not later than 1/31/2022 for this year, for membership through the end of 2022. The timing of dues payment will follow this pattern in subsequent years as well.

Please note that all news and announcements, including the Billboard, will be provided only via email going forward.

If you have questions about your membership, please send those questions to: treasurer@bonsaisocietyofupstateny.org.

Thank you, Diane Koretz, Treasurer, BSUNY

BSUNY Dues and Membership form

Individual member: $30.00
Family membership: $35.00

Name: _____

Address: _____

City: _____ State: _____ Zip code:_____

Telephone: _____

Email: _____

Please make payable to and mail your check to:
Bonsai Society of Upstate NY, Inc.
PO Box 92215, Rochester, NY 14692

How to make a Diaza - a photo essay by Mark Arpag and Bob Blankfield

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1. Trace the outline of the stone with a pencil.

2. Carve inside the pencil line with a Dremel in multiple steps.

3. Use carbon paper under the stone to show where more wood needs to be

4. Carve & check fit until stone fits without rocking.

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5. Use a compass to trace wall to desired thickness.

Extra image of tracing

6. Cut out with a band saw (use 15 degree undercut as shown)

7. Determine location for feet & mark with a pencil

8. Cut out feet with a Dremel using a drill press accessory & router bit

9. Smooth & shape sides and feet with a sanding drum on the Dremel.

10. Check side to foot angle transition.

11. Hand sand using progressive fine grits 180, 220, 320.

12. Apply stain (if desired) with a small brush. Then wipe with a rag to desire shade.

13. Allow stain to dry overnight then apply 2-3 coats of spray lacquer (semi-gloss). (sand with finest paper before last coat.)

14. Hand paste was & buff to finish.

SHOHIN BONSAI FEATURE OF THE MONTH

Shimpaku Juniper, one of the nicest Shohin Bonsai I have seen, love it. Usually the foliage is the dominate feature and the deadwood peaks and hides in and out of the foliage. This deadwood is the dominate feature, it immediately grabs your attention with it's poetic movement, flow and flare. The amount of deadwood is in balance visually with the amount of foliage. I like the choice of pot, the exaggerated flared lip on the pot mimics the extended deadwood on the left side and the cascading foliage on the right side, I want it.
Harvey Carapella

Safe Soil Saves Trees

by Brian Heltsley

Repotting season approaches! One of the surprising truths faced by new bonsai practitioners is that trees growing in tiny pots need a medium unlike conventional potting "soils". The small volume allocated for the root mass requires special strategies to maximize efficient use of that limited volume. While virtually all bonsai enthusiasts understand that "bonsai soil" must be used, they may not fully grasp exactly why this is true or how to select a good soil. This article attempts to (at least partially) bridge that gap.

The sketch in Fig. 1 summarizes chemical (and solar) input to and output from foliage and roots for a healthy tree. While water and nutrients are absolutely necessary for root function, air and airflow are the most difficult to guarantee over the long term when planting in small containers. Maintaining airflow for years to roots confined to a small pot requires that the soil be:

- Granular, with granule size between 1/16" and ¼" (about 2-6 mm), because smaller sizes restrict air flow. Granularity is achieved by manually screening out particle sizes larger and smaller than the desired range.
- Stable in physical and chemical structure over time, to avoid fine particles obstructing airflow. In practice this means avoiding either fine-grained or quickly decomposing organic ingredients.
- Rigid enough to resist compression and settling, which would also restrict airflow.
- Porous, able to hold both water and air after being unrelentingly doused with water.
- Fertile, able hold and release nutrients, although this need is secondary to those above, and less fertile soils can be mitigated with fertilizer

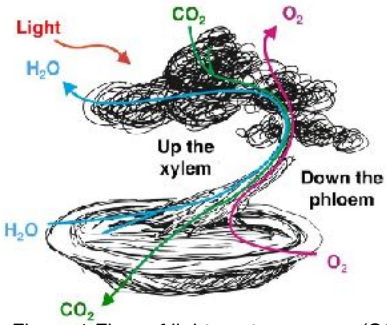

Figure 1:Flow of light, water, oxygen (O2) and Carbon Dioxide (CO2), into and out of a bonsai tree. Illustration by Lydia Shea.

Together these requirements exclude conventional houseplant soils.

Too frequently, specific selection of bonsai soil is an afterthought, and the default is what someone else recommended. There is an alternative to that approach described in an ABS booklet and journal articles.· This approach requires knowing or measuring two characteristics of any soil mix: field capacity (FC), the ability of a medium to hold water, and *saturation porosity (SP)*, the ability of the medium to maintain airflow pathways. Each of FC and SP represent a percentage fraction of the soil volume taken up by either water (FC) or air (SP) after flooding the pot and then letting it drain. Together FC and SP characterize the water and airflow properties of the soil. Bonsai soil should have (FC, SP) located inside the green oval in Fig. 2, where the FC and SP of various individual ingredients and mixes are shown. An ingredient or mix located inside that region can provide adequate moisture and flow of oxygen and carbon dioxide, as

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long as it is watered frequently enough. Outside that oval, the soil may either dry out too quickly on hot or windy days, causing potentially fatal dehydration, or, in the opposite extreme, be too wet, effectively asphyxiating the tree. "Safe soil saves trees**" is a truism if "safe" is taken to mean favorable FC and SP (water- and air-h**olding capacity).

Consider what it means to have a soil mix measured to have FC=25% and SP=33%: Pour the dry mix into a 16-oz measuring cup up to the brim. If you then slowly add water, it will reach the brim when you have added 9.3 oz. Then, if you carefully drain the water while keeping the soil in the cup, 5.3 oz of water will come out. The volume of that 5.3 oz corresponds to SP=33% of the 16 oz volume that is now filled with air, and the 4 oz of water that remains in the soil is FC=25%. In other words, after saturation and draining, a quarter of the container's volume will be water and a third will be air.

How does one know the water and air holding capacities (FC and SP, respectively) of any given ingredient or soil mix? It's pretty easy to measure yourself, as explained and encouraged in the booklet and articles referenced in the footnotes. All you need is a bonsai container with drainage holes, some duct tape, and a digital kitchen scale.

Some take the view that: Cost and availability be damned, bonsai soil should always consist of high quality akadama, lava, and pumice! (See Fig. 2 for why this is not a bad argument: they are all located inside the green oval). But there are other criteria (fertility, ballast, stability, cost). Non-traditional recipes can also yield excellent FC and SP, with the added benefits of having some ingredients that are easier to find and afford. The ingredients and mixes below are only examples; there are others.

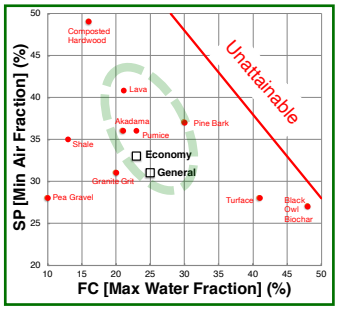


Figure 2: Plot of saturation porosity (SP) vs field capacity (FC) for various

Akadama is an unusual natural clay (see Fig. 3, left) that is ideal in its water- and air-holding capacity while also being quite fertile. Perhaps its most distinctive and desirable quality is that roots can grow into and through the solid grains, substantially increasing the effect size of a bonsai container. The downsides are that it is mined solely in Japan, thus raising its cost, and from some sources can have lower hardness and stability (especially if exposed to repeated freeze-thaw cycles).

Lava and pumice are naturally occurring volcanic rock with high porosity (reasonably good water and air holding capacity). They will not break down in a ten-year time frame, but have low fertility.

Turface® is the brand name for calcined clay, and is marketed to absorb excess moisture on athletic fields. If properly screened for granule size, it can act as a water-holding and feas spectacular water-holding capability (very high FC, very low SP), stability, fertility, and interior spaces that are favorable to beneficial microbes. Its small granular size (see Fig. 3, right) and peculiar internal structure allow it to retain water exceptionally well. Unlike organics, it is chemically stable. Its drawbacks include very low mass density and messy handling: even biochar with the granule size shown in Fig. 3 has powdery content that can become an airborne respiratory hazard and housekeeping nuisance. It should constitute no more than 10% by volume of any mix.

Biochar is a specially prepared horticultural charcoal that has spectacular water-holding capability (very high FC, very low SP), stability, fertility, and interior spaces that are favorable to beneficial microbes. Its small granular size (see Fig. 3, right) and peculiar internal structure allow it to retain water exceptionally well. Unlike organics, it is chemically stable. Its drawbacks include very low mass density and messy handling: even biochar with the granule size shown in Fig. 3 has powdery content that can become an airborne respiratory hazard and housekeeping nuisance. It should constitute no more than 10% by volume of any mix.

Figure 3: Screened akadama (left) and screened biochar (right)

Pine bark and composted hardwood are extremely cheap and easily found in garden stores as mulch, but require a great deal of labor to screen for granule size; half or more of mulch volume is discarded as either too fine or too coarse. They are organic and therefore have good fertility. They will also, over time, eventually break down into smaller particles, but typically only after 3-4 years or longer.

Pea gravel and granite grit are cheaper still and also widely available at garden stores, but may require screening and/or washing. These are not porous whatsoever; nor are they fertile. But they can provide ballast to counteract lighter materials and hold only a tiny amount of water between adjacent granules (low FC and low SP). They will not break down.

(*continued on page 5.*)

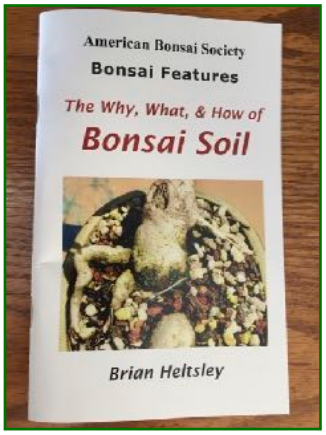
All the naturally occurring media can vary in their FC and SP according to source: that is, my akadama may not be the same as your akadama; my lava may not be the same as your lava; etc. Right now, I source akadama from Superfly Bonsai; lava, pumice, and shale from American Bonsai; Turface, pine bark, and granite grit from Agway, and hardwood mulch and pea gravel from Lowes. My biochar is custom-prepared (screened and infused with organic fertilizer) by Biochar Supreme.

A pure akadama mix would have good FC and SP and fertility but be more expensive and potentially prone to breaking down faster. A pure lava mix would have good FC and SP but require more fertilization because it has less fertility. A pure pumice mix would have excellent SP but low fertility and mass density, so might have to be fertilized more often and not offer adequate ballast. Turface and biochar hold little air, so, if used alone, could provide too little oxygen to the roots. The above potential drawbacks to single-ingredient mixes lead to a strategy of diversification to multiple ingredients to optimize several properties simultaneously.

The possibilities for devising "safe" recipes for bonsai soil mixes are endless. Importantly, they can be tuned to meet specific needs of a particular microclimate, watering regimen, or species' preferences. Below appear two such mixes. In the right combinations (which are not always intuitive), ingredients with (individually) far from optimal water or air holding abilities can, together, form a "safe" mix. My materials-only costs are listed; note that they are less than commercial bonsai soils (because they omit additional labor and profit). Note from Fig. 2 that these two mixes lie within the favorable oval of water- and air-holding capacity.

- **Economy Mix**: 20% lava, 20% shale, 20% pine bark, 10% composted hardwood, 10% Turface, 10% biochar, 10% pea gravel. $2.00/qt.
- **General Mix**: 30% akadama, 20% lava, 20% pumice, 20% shale, 10% biochar. $3.50/qt.

The General Mix might be best used for mature trees; the Economy Mix might be used for tropical and other rapidly growing trees that will be repotted in 4 years or sooner, or when cost is a primary concern.



The above mixes are examples only. The point of this article is that you have the ability to tune whatever mix you have to your needs for a drier, airier, wetter, more or less fertile, or less expensive soil. You can substitute for a particular ingredient or supplement an existing mix, and, using the techniques described in the booklet, measure the extent to which you have met your goal before using the soil. Happy repotting!

Thanks to Brian Heltsey for re-working this article for our Billboard. It was previously included in the American Bonsai Newsletter,

Dues update:
Some of you have inquired about the Club waiving dues because of the lack of meetings due to the pandemic. The Board has carefully considered this, and does not feel this is the right thing to do at this time, for several reasons. First, the dues of $30 per individual, $35 per family are quite reasonable. In addition, the wealth of information available to club members through the Billboard, the link to the American Bonsai Society Newsletter, and frequent expertise offered to all of us from Bill Valavanis are very valuable benefits of membership. Additionally, when we were able to meet again over the summer and fall, and when we will start again hopefully in March, the cost of the Lodge has increased fairly dramatically. The Town can no longer rent it out for parts of the day but charges us for the entire day. Finally, we missed our fundraising auctions at the June picnic and the December Holiday party, both of which in the past have provided valuable and substantial funds for our Club. We appreciate your continued membership!

Billboard is brought to you by:
President: Mark Arpag
president@bonsaisocietyofupstateny.org
Co-editors & photographers:
Marti & Tom Macinski
billboard@bonsaisocietyofupstateny.org
Contributors: Mark Arpag, Bill Valavanis, Brian Keith Heltsey, Harvey Carapella, Marti & Tom Macinski
Please submit any ideas for the Billboard to Marti & Tom. If you have ideas for the BillBoard, please email Marti & Tom:
billboard@bonsaisoietyofupstateny.org