

# RYAN NICHOLS DISHES THE DIRT ON SOIL



*December's Guest Speaker Ryan Nichols discussing the finer aspects of soil composition.*

*Photos by David Williams*

**by Dan Kashinsky**  
Editor in Chief

**R**yan Nichols drove in from Riverside where he is a graduate student in plant biology. He graduated in horticulture from Cal Poly. His activities include taking care of his bonsai in harsh conditions, studying under such notables as Ryan Neil, teaching and of course writing his thesis which is on plant health, water requirements, and nutrient use under deficit conditions.

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# Ryan Nichols

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He lectured earlier in the year on the basic biology of the tree you see above ground. Today he focused on the root structure and function describing functional anatomy and answering loads of basic questions.

Below are topics Ryan covered if you missed the meeting.

Trees are autotrophs meaning carbon dioxide water and light (the energy) are the basic needs of tree metabolism. They don't need another organism (hamburger) to grow and reproduce.

The parts (there are many parts) of the root that are most metabolically active are the root hairs. They grow about one inch or so up from the tip of the root and are tiny, just 1/64th of an inch, and are short lived (2 days.) They are always ruined when the tree is transplanted, but are active enough to regrow quickly. The hairs increase the surface area for water and nutrient uptake. Secondary roots and taproots offer large storage areas for starch and stability in nature but are no longer as essential for bonsai structure stability.

The roots operate best at temperatures specific to each species but range optimally from 65-85F soil temperature and more broadly from 45-90 with the tropicals liking a warmer soil temperature whereas in pine and other temperate species roots are still active at 45 degrees F. Soil temperature can be buffered (maintained above or below air temperature) but the use of light colored sphagnum moss on the surface (holds moisture and reflects some light) and aluminum foil around pots to insulate roots while reflecting intense light and heat (shiny-side out!).

Soils are necessary for tree structural integrity, water storage, gas exchange (oxygen) and nutrient holding capacity. When choosing a soil mix, always consider this principle: the soil has to hold water, allow for ample oxygen, hold nutrients, and not break down quickly. Sand and decomposed granite (DG) only hold small amounts of nutrients if any. Silt has a higher capacity to hold nutrients than sand, clay (which is used fired in the form of akadama) has a higher capacity than silt, and organic material (any carbon based substance such as bark or mulch) has the highest capacity to hold nutrients. Pumice and Lava rock are good in bonsai soils because they hold more water and nutrients than sand and DG whilst allowing good drainage and oxygen uptake.

Nutrients are divided in to macro and micronutrients. Some of the most important macronutrients are nitrogen, phosphorous and potassium. These are shown on the "fertilizer bag" as 10-10-10 or 0-10-10 etc. Nitrogen acts in multiple ways for tree growth via protein manufacture for leaves stems and roots. Phosphorous contributes universally especially in DNA replication, cell division, constructing cell walls, and is a critical contributor for all energy dependent processes in the plant ("ATP"). Potassium (K) is the main solute inside most cells. Calcium plays a large role in all plant processes, such as allowing roots to take up other necessary nutrients from the soil. Micronutrients iron and magnesium cause yellowing of leaves (chlorosis) when deficient because they are important in making chlorophyll.

Spring is the best time for repotting because of the long So Cal season. In regards to California Juniper collecting time and repotting time, he believes spring is the best time to repot although after winter rains maybe the best time to collect trees from the wild. Of course transplanting into a bigger pot or into the ground can be done anytime. Too big a pot however in transition can keep too much water for the roots and cause rot.

We are looking forward to having Ryan complete this set of lectures on soils and transplanting.



## Kai Wire Feedback



*"Thank you for sending Jesse the newsletter. He does like to receive them, even if he is not coming to meetings."*

- Sandy Levy and Jesse Baron

If you have any comments or info for the Kai Wire, please send them to Daniel Kashinsky at [kaptankaiser@gmail.com](mailto:kaptankaiser@gmail.com)

### Contest for raffle tickets:

**Which parts of the light spectrum (remember the rainbow) does your tree use in photosynthesis?**

*Naka Notes - Lessons from a Master is Jack Reynolds's collection of guidelines primarily from Sansui-Kai founder and master John Naka's texts, **Bonsai Techniques I and II** monthly care of your bonsai.*

## Naka Notes *Lessons from a Master*

by Jack Reynolds  
Contributing Editor



January is a good month to study structure and style of your deciduous trees. You can also study deciduous trees in nature. I have learned a lot from studying the local deciduous oaks because they are often very old and have wonderful drooping branches with interesting curves. Whenever you are out among trees take note of the best ones and try to see what is that makes them attractive.

We've had some rain and for some of us snow, so most of your trees will be damp. Watch your trees carefully for the first sign of needing water. Keep your trees damp but not wet. Elevate the edge of your pot about an inch to keep water from pooling. Don't water pots that are frozen. Warm these pots slowly. Too much overhead watering can promote the dreaded needle cast fungus in pines so I would not do it at this season.

Be sure to keep your tropical trees under some protection from frost. You can even put them in your garage for several days during particularly cold periods. Bringing them into the house for more than a week or two is risky because the warmth may stimulate new buds that will freeze when the plants are put out.

The only trees that need fertilizer are conifers because they do not go completely dormant in southern California. A slow release 5-5-5 should be good. Soil amendments such as gypsum can be used to soften compact soils. Now is the time to do your first application of lime sulfur dormant spray to all your dormant deciduous trees. A second will be done in

February. The purpose of lime sulfur spray is to kill leaf curl as well as the eggs of many parasitic insects that have been deposited on the bark. Protect your soil (cover it) even when using diluted lime sulfur. Remove debris and weeds from the pot. Some replace the first half inch of top soil with new soil mix.

Wiring, particularly of deciduous trees may be done this month but be careful of brittle branches. Drastic shaping should be left for the spring. Be very careful to remove old wire that is cutting into branches. Do not transplant anything at this season. Wait another month or two. An exception is California Juniper which may be transplanted in January and February. One can get soil mixtures made up and sharpen tools. Start matching plants with pots for repotting season coming up.

## Winter Silhouette 2013 Call for Entries

The Baikoen Bonsai Kenkyukai Winter Silhouette Exhibition held each year in January at the Los Angeles Arboretum Ayres Hall, this year on January 18th and 19th. Featuring only leafless trees the show presents some of the most refined bonsai in our region.

We have been invited to place one tree. Bring in your best dormant tree to the January meeting on the 2nd. Peter Macasieb will be the demonstrator that evening.

Shown here are the silhouette trees placed last year in the show by Elliott Farkas and Jack Reynolds. Elliot's pomegranate was honored on the cover of the Golden Statements.





Sansui-Kai is dedicated to the learning, use and teaching of the horticulture techniques and artistic principles needed to grow, design and care for bonsai. Regular membership is \$22 & \$27 for Families.

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## Peter Macasieb to Speak in January



**P**eter Macasieb was introduced to bonsai when stationed in Japan in the Air Force. He saw many beautiful bonsai in Tokyo and was hooked. When he was discharged from the Air Force, he moved to West Covina and started creating bonsai with the John Naka books to guide him. He won awards from the city for the way he converted his yard into a Japanese garden. Later Peter took second place in a worldwide Internet Bonsai Styling Contest over 200 entries.

He joined Kofu Kai and met Harry Hirao and Tak Shimazu who are his teachers. Peter is now also studying with

Boon Manakitivipart in the Bay Area.

Peter is a member of many local clubs including Nanpu Kai and California Bonsai Society. His last appearance at SSK was 1 year ago. The tree he brought to work on was a California juniper he collected and that night styled into a bunjin. Peter has been collecting California juniper with the bonsai icon Harry Hario for many years. Lucky Gloria won the tree in raffle 1 year ago.

**H**appy New Year! Sansui Kai finished up 2012 with an excellent lecture demo by Ryan Nichols. Ryan joined us for the second time this year, and shared his wealth of scientific knowledge about plants and horticulture to help us better understand how our bonsai grow and why we use the techniques that we do to design, care for, and develop our living works of art. Thanks again to Ryan for a very informative demo!

The first demo of the year will be led by Peter Makashieb. Peter is an up and coming bonsai artist who has advanced quickly and he's great demonstrator. Peter led a demo for us last year that was very informative, so don't miss it!

We will be having our annual Officer elections coming up, so if you would like to help Sansui-Kai with day to day operations, please see Eric Percifield or Elliott Farkas. We could not operation the club without volunteers, so please do what you can to help! All current positions are open for 2013.

We have also been invited to display a winter silhouettes tree in the upcoming winter silhouettes show in February. This is an honor for our club, so if you have a tree that you think will be a good representation of our club, please be sure to bring it to the January meeting and we will vote on the best tree. See Eric Percifield for more information.

## As I See It

by **Eric Percifield**  
SSK President

### Refreshments

Ed Henjyoj  
Ron Brown  
Maria Atkinson

SSK Dues are due! Please pay 2013 dues at January meeting or send a check for \$22.00 per person or \$27.00 for a family to YOKO ZIPUSCH at: 18419 Blackhawk St. Porter Ranch, CA. 91326 Please make checks out to Sansui-Kai-Bonsai.

Thank you and Happy Holidays!  
Yoko and the Board Members