

PINE MANAGEMENT THEORY

PART 13



By
Greg Cloyd

Fertilization Of Japanese White Pine

Japanese white pines are fertilized using one-third to one-half the number of fertilizer balls or one-third to one-half the concentration of liquid fertilizer you use for your Japanese black pines. Japanese white pines are fertilized in spring and again in late summer and early fall. White pines do not have as pronounced a mid-summer dormant period as Japanese black pines. This is because their candles are only broken in half rather

than being completely removed as with Black pines. Dennis Makishima still recommends removing fertilizer cakes from Japanese white pines after candle breaking and through the mid-summer semi-dormancy period of July and August. In the autumn, for all pines, he recommends bone meal fertilizer as a low nitrogen and higher phosphorus and potassium source encouraging root growth without producing soft top growth or interfering with winter hardening.

Japanese five-needle pine, Pinus parviflora, trained in the informal upright style and displayed at the 2003 National Bonsai Exhibition in Tokyo, Japan.



WM. N. VALAVANIS PHOTOS

Fertilization In Preparation For Display Of Japanese White Pine

An alternate fertilization method for Japanese white pines was described by Joe Harris. It is designed to produce finer, shorter needles the summer before a planned winter display. Spring fertilization is kept to a minimum until after the new candles have emerged and been pinched and the new needles have emerged and hardened. Lacking early fertilization and having been less liberally watered, the new needles and internodes will be shorter and the new needles a little less intensely blue-green or more chlorotic in color. Waiting until summer to begin fertilization allows the normal color to return and deepen by fall without unduly lengthening needles or internodes. After autumn and winter needle thinning there will be a uniform, short, well-colored needle for winter display.

Julian Adams uses a similar technique for Scots pines. He does minimal spring fertilization, waiting until after needle hardening before beginning to fertilize.

Ponderosa Pine Fertilization

Ponderosa pines continue needle lengthening until August. Injudicious fertilization and watering of Ponderosa pines in spring and early summer will produce "Bunyonesque" needle length. Ponderosa pines are particularly low in nitrogen requirements. I use diluted fish emulsion fertilization in spring then wait until after needle hardening and needle length is set in late summer (August) to place one-third the number of fertilizer balls recommended for Japanese black pines. In autumn, bone meal is substituted for fertilizer balls. On developing plants long needle length is ignored and fertilization is the same as for Japanese black pines, but with only one-third the number of fertilizer balls.

The spring and summer prior to using a major bud and needle

removal technique; I fertilize with half the number of fertilizer balls I use for Japanese black pines and water a little more liberally.

Three Year Plan For Rehabilitation Of A Domed Tree

Japanese black pines with excessively vigorous apexes or large topped crowns are referred to as bigheaded trees, by Dennis Makishima. These crowns can, in general, be reduced using a three year management plan. Attempting to correct this defect in one season would likely kill or ruin the pine. The following is an example of how to "stage" major styling changes, wean a branch, or reduce an overly large top from a tree over time, if there are no branches greater than two-thirds of an inch in diameter that need to be removed.

In late winter of year one, unwanted one-half to two-thirds inch diameter branches are shortened in

the upper parts of the tree. In spring, intermediate strength areas are decandled and the lower, weaker areas of the tree are left alone. In fall, further cuts in strong areas are made as vigor allows and three year old needles are removed. Near the base of the tree leave new needles and second year needles. In the top of the tree take out second year or older needles. In very weak interior areas leave all needles. This process is repeated each year, based on tree response, until the head is reduced sufficiently to allow light penetration and vigor to equalize throughout the tree. By avoiding one-time massive cuts, dieback and tree loss are minimized.

Tempus Fugit

Dennis Makishima's suggestions regarding the importance of staging cuts and exercising the Art of Patience were previously mentioned. On the other hand, do not waste

time. When the tree is vigorous and the season is right, be intelligently aggressive. Make the appropriate pruning cuts. Wire the tree and style it. Patience is important, but the available windows of opportunity are short and should not be missed. It's great to develop bonsai for your great-grandchildren, but you will enjoy seeing a tree develop in a time frame shorter than your lifespan.

Diseases Of Pines

Diseases of pines vary significantly by species and region of the country. Tip moth larvae cause candles to collapse. Sawfly larvae devour needles. Pine aphids and scale suck juices. Trunk borers consume cambium. Roots are destroyed by rot and entire collections succumb to needle cast. Each year we collectively hold our breath in anticipation of spring and dread finding which of our treasures were lost to pestilence.

Japanese black pine, Pinus thunbergi, trained in the root-over-rock style. This bonsai, from the Imperial Bonsai Collection was displayed at the 2003 National Bonsai Exhibition in Tokyo, Japan.



To combat our fears of loss we sometimes do foolish things. One of these things is spraying multiple toxic chemicals on our plants in the blind hope that we will ward off disease. This usually guarantees that the eventual disease or insect outbreaks in our collection will be resistant to chemical remedies. An approach which is safer, less resource wasteful and more environmentally friendly is integrated pest management.

Integrated pest management involves knowing the phenologic signs associated with pest emergence in your area, monitoring your plants for the actual occurrence of disease, using minimally toxic measures first and reserving toxic chemicals for truly threatening outbreaks. In many cases low levels of pests pose no threat to the plant and can be safely ignored.

Chemical spraying is most effective if used during the most vulnerable part of the insect or disease life cycle. Experienced bonsai growers, internet and print resources along with agricultural extension agents can be invaluable in selecting appropriate chemicals, concentrations of chemicals and timing of spraying. Beware, most life processes targeted by toxic chemicals occur in you as well as pests. Protect yourself so the pests are the ones that die.

The best tool to protect your collection from disease or insects is knowledge of the disease triad. For any pest to survive and cause problems three conditions must be met: there must be plants susceptible to the pest; there must be favorable growing conditions for the pest; and the pest must be introduced to your collection. Collect and grow pest resistant varieties suitable for your region. Keep your nursery area clean. Maintain the vigor level of your trees. Disinfect your tools. Quarantine new arrivals to your collection. Remove diseased plants from your surrounding garden.

If your pines are grown in rapidly draining soil, on well-spaced benches in full sun, with frugally applied water and fertilization you, likely, will not need to engage in chemical warfare. When a pine is over watered and over fertilized in an attempt to speed development it frequently increases foliage, but at the expense of defensive chemical production and root growth. The

excess growth must be removed, and the soft nature of such profligate growth encourages pests. Take your time, it produces better bonsai in the long run.

Miscellany

Allow only one primary branch per trunk whorl and one secondary branch per primary branch node to avoid swellings. Branch junction swelling seems to occur early with Scots pine. Swollen branch junctions and swollen calluses arrest visual movement, that is to say, they become visual focal points similar to jin. Visual movement is important in

guiding the eye along the line of the trunk and pacing it between foliage planes. Trees with sparse foliage planes, especially literati-styled trees, depend almost solely on the visual movement created by the line of the trunk. This trunk line is the essence of the tree. Swollen junctions arrest visual movement and distract the eye from the intended trunk line. Avoid them when possible.

Summary

The techniques and pines described in this article are ones with which I have personal experience or knowledge related to me by experi-

Japanese five-needle pine, Pinus parviflora, trained in the informal upright style and displayed at the 2003 National Bonsai Exhibition in Tokyo, Japan.



enced bonsai growers. There are undoubtedly other pine species and techniques suitable for bonsai. Likewise you will find, from time to time, a particularly strong or weak individual tree that runs contrary to the descriptions in this article. Rather than be frustrated by these plants, observe them and attempt to understand why they are different. Such attempts were the beginnings of my fascination with mountain conifers and later the beginnings of this article.

This article was mainly undertaken to solidify, in my own mind, "Pine Theory" as taught by Dennis Makishima. My effort has been to explain how vigor is distributed in pines and how to "read" the vigor of a pine. I have reviewed the Pine phenologic calendar and how different pine species respond to the stresses of pruning throughout the year.

Hopefully, the reader now

understands the reasoning behind pine technique selection and timing and can be free of rote technique application on set calendar dates. The hope is that by demystifying this subject, the reader will be emboldened to go out and obtain some pines for bonsai training. This brings us back to the most fundamental of bonsai lessons: Observe trees in natural settings, understand the passing seasons and listen to your trees.

Information Sources

Dennis Makishima is a highly experienced professional pruner. During his career he has developed an extensive small landscape tree pruning educational program. Dennis has cared for thousands of garden pines for private clients and served as consultant for international arboreta on pine and maple care as well as on removing the evidence of

the human pruning touch from important old trees. After years of bonsai study in Northern California, Dennis went on to work as an apprentice under Mr. Mitsuya of Toyohashi, Japan. Today, Dennis demonstrates and teaches bonsai at international symposia and continues to enjoy teaching advanced bonsai study groups. Recently he has relinquished his longtime position as the Golden State Bonsai Federation's Education Director and President of the organization.

Two other artists, fully apprenticed in Japan, have heavily influenced my understanding of the traditional bonsai teachings regarding Japanese black pine and Japanese white pine, Kathy Shaner, trained by Mr. Mitsuya, is the first American and the first woman to be awarded a professional teaching certificate in Japan. Joe Harris of Matsunami-en division of Iseli Nursery in Oregon, trained four years in Japan under Mr. Hashimoto of the former Kanuma Nature and Bonsai Park.

Speakers at the 1999 Pine Symposium in Rochester, New York, were Julian Adams, Marty Schmalenberg, as well as Bill Valavanis, the perennial organizer of the symposium and editor of *International BONSAI*. Other personal contacts, writings or lecture sources of information for this article are my fellow Rocky Mountain collectors and longtime pine growers Larry Jackel, Dan Robinson, Harold Sasaki and Andrew Smith, as well as, Jack Wikle, a far northern and long-experienced grower of pines and insightful editor.



ABOUT THE AUTHOR

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Greg Cloyd is a serious bonsai hobbyist who has studied pines for many years. He has organized an advance bonsai study group and invited many of the top pine specialists from the country for discussions and educational programs. The search for authoritative information on pine has recently led him to Japan where he visited many of the top growers.

Dr. Cloyd is a physician and member of the Cleveland Bonsai Club. He is also interested in native collected trees. He freely shares the results of his research and study by presenting programs and writing articles for publications. He maintains an impressive bonsai collection in Hudson, Ohio.

Japanese five-needle pine, Pinus parviflora, trained from a collected tree and displayed at the 2003 National Bonsai Exhibition in Tokyo, Japan.

