Pine Management Theory

Part 8

By
Greg Cloyd

Japanese White Pine

The Japanese white pine also called Japanese five-needle pine, *Pinus parviflora,* is an alpine, cool climate tree. It is inherently less vigorous and more drought tolerant than Japanese black pine, Pinus thunbergi. It is watered and fertilized more sparingly than Japanese black pine and because of its lesser vigor it is treated more gently in candle management.

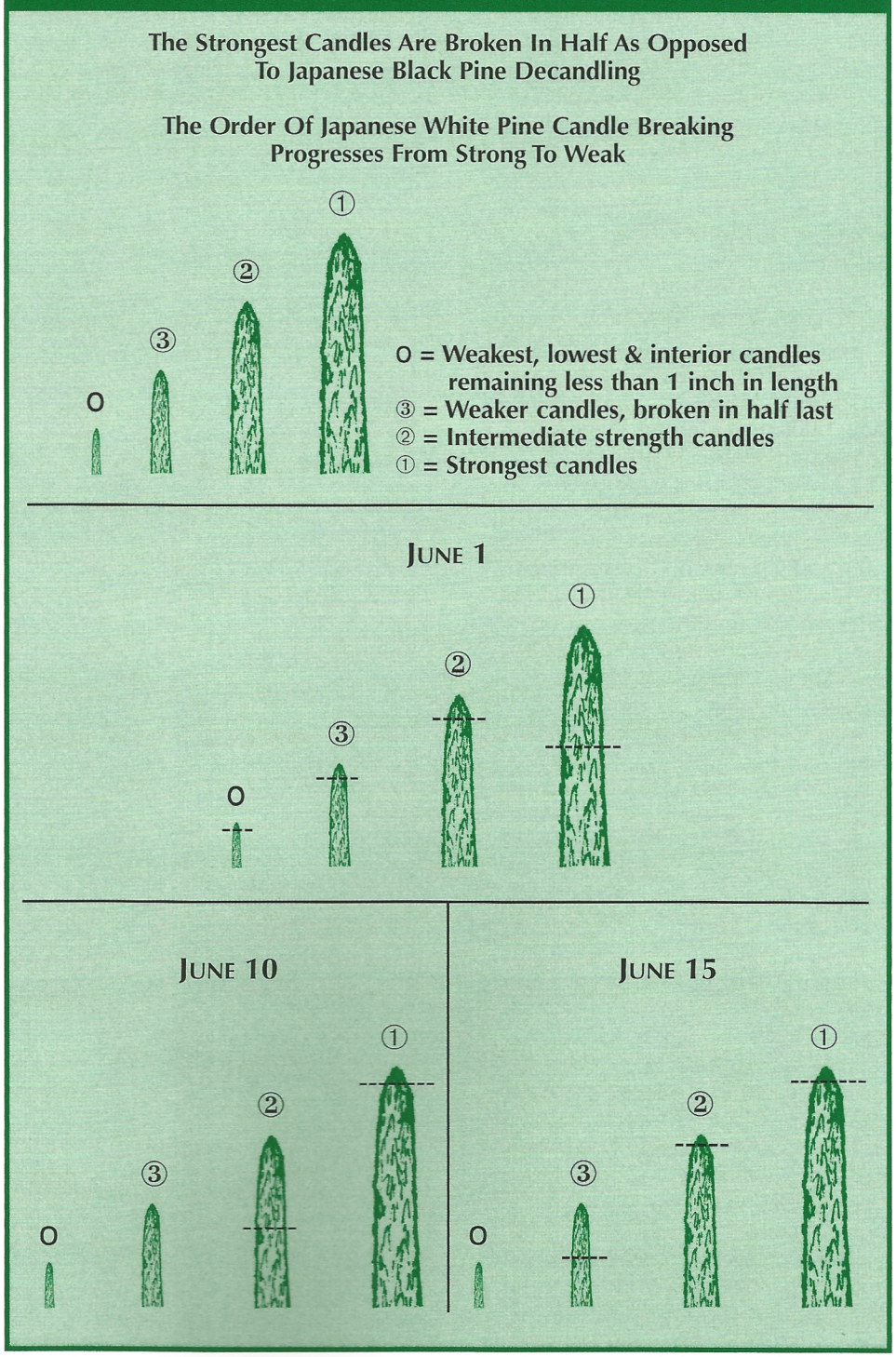
Japanese white pines do not predictably produce a second flush of growth if spring candles are removed. For this reason the Japanese white pine spring candle management technique is different than the spring technique used for Japanese black pines and other more vigorous pines that predictably produce replacement shoots after decandling.

Japanese Five-needle Pine Spring Candle Technique

Japanese five-needle pine candles elongate in late spring, May and June, in colder climates, as with black pine. In contrast to Japanese black pine decandling (complete candle removal technique) white pine candles are broken off in half if they elongate more than an inch, leaving some new needles on the tree to replace the photosynthetic capacity lost to autumn needle shedding. This, in essence, retards candle elongation in a strong to weak order since the strong candles elongate first. Note that this is the opposite of Japanese black pine, weak to strong decandling technique. The candles are broken by hand while they are still rubbery and in the "pineapple stage".

Buds in the areas of greatest vigor will elongate into candles first and the least vigorous buds will elongate last. Fewer needle clusters are left in the most vigorous areas (the shoots are broken off shorter). The weakest interior and low branch candles are left unbroken. The entire

Fig. 17
Japanese White Pine Spring Candle Breaking Schematic



process is completed over a period of a week to a month, depending on the pre-existing vigor balance of the individual tree.

When Japanese black pine candles are cut off, excess sap loss (bleeding) is usually not a problem. In contrast to Japanese black pine management, Japanese white pine candles are broken in half rather than being cut because broken candles empirically produce less pitch loss than cut candles. Pitch loss after pruning cuts is significant with Japanese white pines. Excessive pitch loss further weakens white pines, which are already less vigorous than black pines.

Many of the broken off white pine shoots will extend beyond the desired silhouette in summer. They are not trimmed back to the silhouette until fall when interior replacement buds are visible. This emphasizes another significant difference between the more vigorous pines, such as Japanese black pine, and the less vigorous species such as Japanese white pine. The more vigorous pines will usually produce new buds on a shoot if there are remaining needles on the shoot, even when all buds have been removed.

The less vigorous pines will often not produce new buds on a shoot that has no remaining buds. On any pine the risk that the tree will not produce replacement buds increases with smaller, lower, interior and weaker branches.

Japanese red pines, *Pinus densiflora,* Mugo pines, *Pinus mugho,* Austrian pines, *Pinus nigra,* Jack pines, *Pinus banksiana,* Lodgepole pines *Pinus contorta* and Eastern white pines, *Pinus strobus,* are treated similarly to white pines for spring candle management.

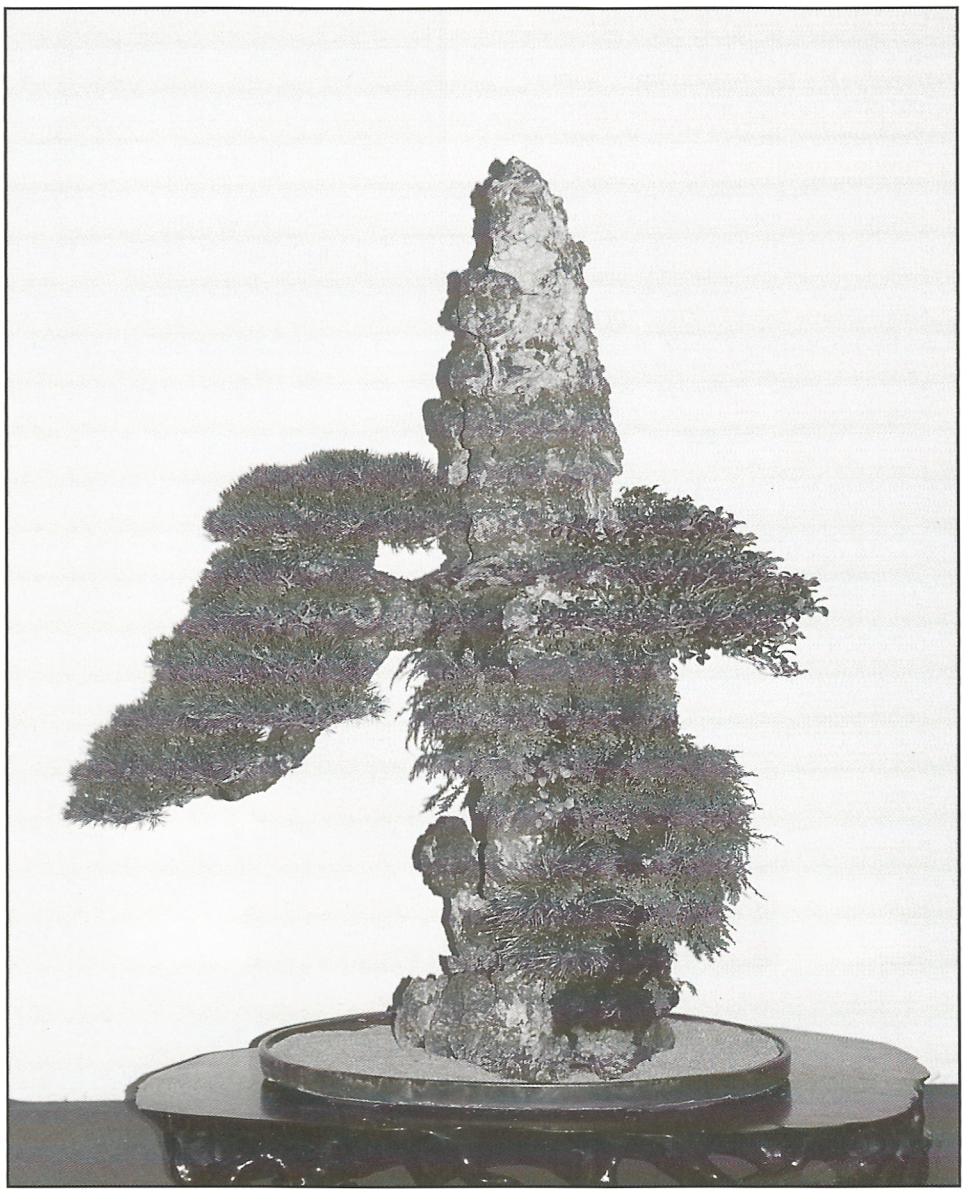
Ponderosa Pine Spring Growth Management

Ponderosa pines, *Pinus ponderosa,* require exacting post-collection care to bring them to a state of vigor sufficient to produce candles while in a pot. Ponderosa pines will usually not produce replacement shoots if decandled. Even if not decandled the buds of containerized Ponderosa pines typically elongate only minimally without producing a true candle. Because of this relatively low vigor, spring decandling is not widely used by experienced growers. Instead autumn vigor balancing techniques are used to manage Ponderosa pines. Jeffrey pines, *Pinus jeffreyi,* and Limber pines, *Pinus flexilis,* are treated similarly to Ponderosa pines.

An Admonition Regarding Collected Mountain Pines

One reason mountain pines infrequently attain higher vigor in a pot is that they are moved outside their native ranges. A frequent misconception is that minimal survivable winter temperatures (USDA cold hardiness ratings) are the primary factor in determining plant survival and vigor. In fact, summer temperatures and summer nighttime low temperatures are just as important as minimal winter temperatures. Total seasonal sunlight exposure, humidity, annual rainfall and seasonal rainfall distribution, number of days with average temperatures above 85°F, water quality, soil drainage, soil temperature, and air quality all affect plant survivability. Grower experience in re-establishing pines is a factor too. If you are unsure how to assess a tree's potential survivability, ask one question; has anyone else in your area had success with the plant? Seek the guidance of experienced collectors before attempting to grow or collect mountain pines. Ignoring these limitations squanders limited natural resources.

'Kokonoe' Dwarf Japanese five-needle pine, Pinus parviflora 'Kokonoe', *trained in the clinging-to-a rock style with Satsuki azalea. This masterpiece bonsai was exhibited at the 2000 Grandview Bonsai Exhibition in Kyoto, Japan.*

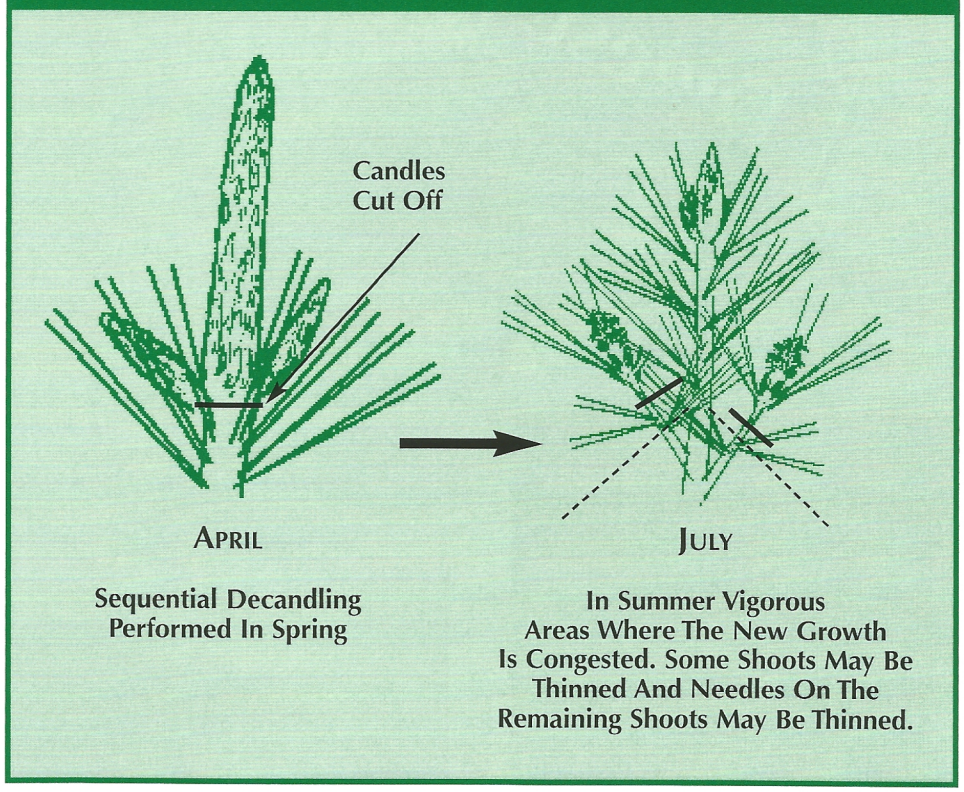


WM. N. VALAVANIS PHOTOS

Summer: R&R, Rest And Recovery
Summer Thinning Of Congested Shoots

Wayward shoots, those in obviously poor positions, may be removed in summer. Likewise, excess or congested shoots may be removed and needles thinned. Summer needle and shoot congestion are mainly seen on very vigorous and fast growing species of pines. In the strongest vigor zones of Japanese black pines where up to seven replacement shoots have occurred, the shoots are reduced to three. Monterey pines, *Pinus radiata,* in particular, require summer thinning because they naturally send a second and sometimes a third summer flush of growth annually. This tendency to produce multiple annual growth flushes is similar to southern U.S. pines such as Slash pine, *Pinus elliottii,* and Loblolly pine, *Pinus taeda.* The bulk of the summer thinning of Monterey pines consists of removing excess buds in mid-summer.

FIG. 18
JAPANESE BLACK PINE SUMMER THINNING



Japanese five-needle pine, Pinus parviflora, *trained in the multiple trunk style and exhibited at the 2000 Grandview Bonsai Exhibition in Kyoto, Japan. Note the small compact foliage developed by using the correct trimming techniques.*

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.